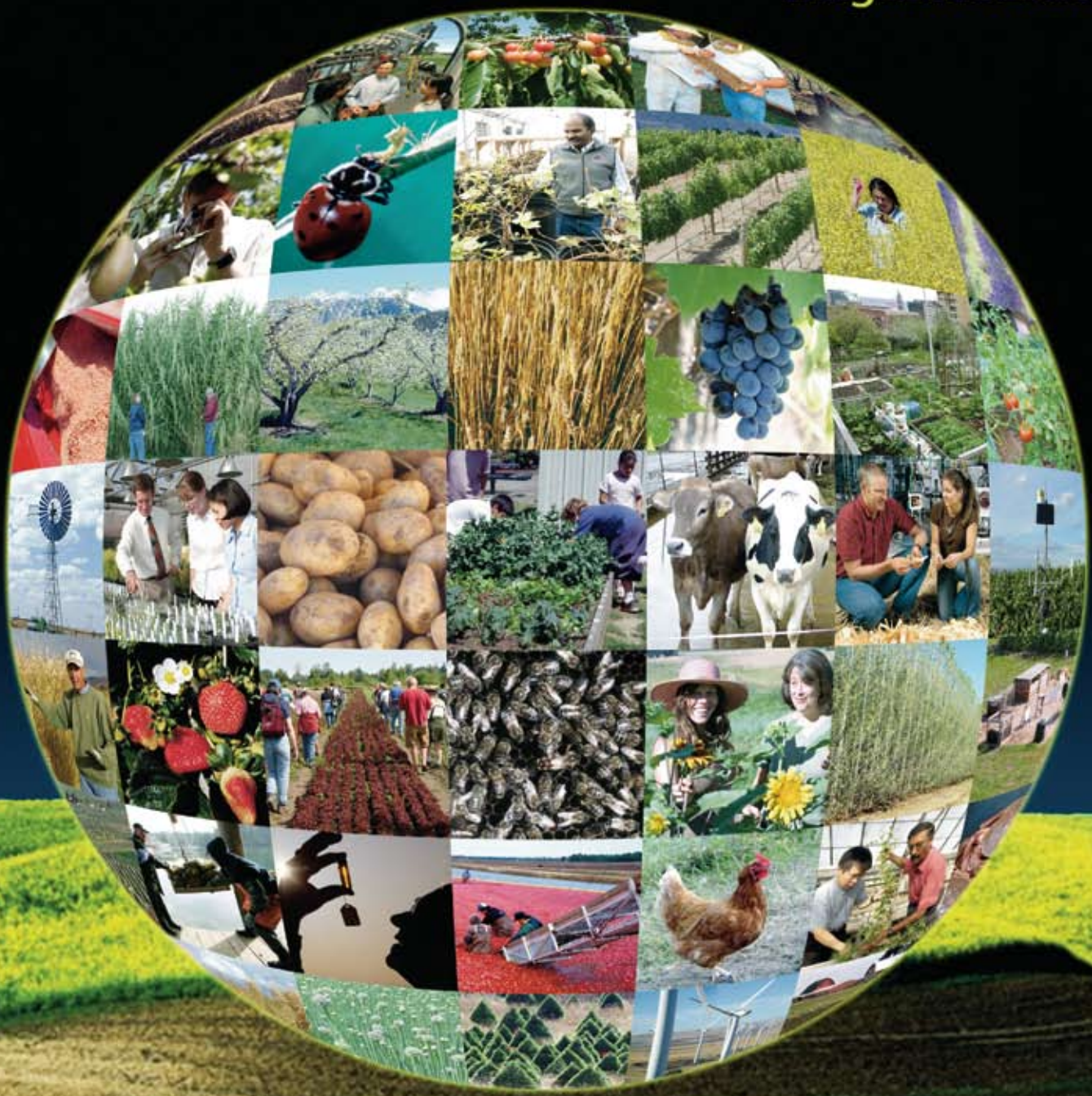
CONNECTIONS

WSU COLLEGE OF AGRICULTURAL, HUMAN, AND NATURAL RESOURCE SCIENCES ALUMNI AND FRIENDS

magazine 2008



Farms, Food, Fuel, and the Future: What Could It Look Like?

Partnering to Protect Puget Sound • Happy Birthday, Ferdinand's • Cyber Bully!

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Front cover:
*Farming in the future will take on a variety of forms. Design by **Gerald Steffen**, WSU Extension Publishing and Printing.*

Inside cover:
*The sun sets behind Steptoe Butte as seen from Idaho. Photo by **Lagene Taylor**, WSU Extension Publishing and Printing.*

Meeting Washington's Future:

Beyond the borders of traditional research and education

Daniel J. Bernardo

Dean, College of Agricultural, Human, and Natural Resource Sciences

THE FUTURE IS INTERDISCIPLINARY. That's a truth we hear loud and clear, and it's one we're implementing across all of our research and academic programs in the college.

The old model of niche specialization doesn't serve the students in our college, or our stakeholders in the ag, food, and fiber industries. As I travel around the state and the region, people who work where the rubber meets the road tell me they need employees who can solve problems that simply are not covered in any textbook and who can stay current with the rapid pace of technological change. And that's the very definition of "interdisciplinary": pulling expertise from a variety of academic disciplines rather than relying on a single approach.

The same is true in focusing our research. When Colony Collapse Disorder threatens to destroy our tree fruit industry due to a lack of pollinating bees, the college mustered an interdisciplinary team to investigate solutions to the problem. Likewise, in confronting labor shortages, we've assembled teams to address the need for greater efficiency in the fields and to keep Washington ag competitive on the global stage. And of course biofuels and bioproducts, which we all hope will reduce our dependence on dwindling petroleum reserves, are the nexus of a university-wide, interdisciplinary push.

We're well equipped in the college to rally world-class talent to address these and other urgent issues. A study published recently in the *Chronicle of Higher Education* ranked ag-related science at WSU as among the best in the nation. Those rankings reflect productivity, and productivity in the sciences means our faculty are the trend setters who map the road ahead.

And the trend is interdisciplinary, so in our academic programs we're working hard to create some of the most innovative degree programs in the country. Agricultural and Food Systems, for instance, is still one of the few programs in the world to offer a degree in organic agriculture. That's innovative, but the real value of AFS is that it approaches the entire field-to-table enterprise as a system, one of interconnected parts that all function as a whole.

Likewise, our fast-growing program in viticulture and enology doesn't just teach students how to grow grapes and make wine. Those are certainly key components of a V&E education, but so are biochemistry and marketing. And in Washington's premium wine industry, the second largest in the country, a winemaker needs the knowledge and skills that in other universities are confined to business programs.

In our design programs, seniors spend their final year at WSU Spokane, at the Interdisciplinary Design Institute, where they work in interdisciplinary teams solving design-and-build problems.

Beyond the program level, we're implementing a wide variety of what we call experiential learning opportunities. We all know that the best way to learn is by doing, so that's what our students are getting: hands-on experience in a wide variety of settings. Likewise, we're partnering with companies small and large in an effort to make sure every one of our graduates has an internship by the time she or he graduates.

Problems, and their solutions, don't recognize the boundaries of traditional academic disciplines. We're ahead of the curve in thinking outside those old boxes, but we still have a lot of work to do. You'll be able to continue to track our progress in these pages in years to come, or sooner if you visit our Web site (**www.cahnrs.wsu.edu**) and subscribe to one of our e-newsletters, such as On Solid Ground (**www.onsolidground.wsu.edu**), where you'll find the latest research and education news from WSU Extension and the College of Agricultural, Human, and Natural Resource Sciences.

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College of Agricultural, Human, and Natural Resource Sciences
Alumni and Friends Coordinator
Washington State University
PO Box 646228
Pullman, WA 99164-6228

CONNECTIONS Staff

Publishers:
Daniel J. Bernardo, Dean, CAHNRS

Linda K. Fox, Associate Vice President and Dean, WSU Extension

Alumni and Friends Executive Director:
Caroline Troy

Development Coordinator:
Linda Bailey

Principal Assistant:
Britta Nitcy

Secretary:
Kimberly Newlands

Writers and Editors:
Kathy Barnard, Dennis Brown, Brian Clark, Denny Fleenor, Therese Harris, Dora Rollins, Gerald Steffen, Lagene Taylor

Photographers:
Dennis Brown, Brian Clark, Denny Fleenor, Shelly Hanks, Bob Hubner, Lagene Taylor

Graphic Designer:
Gerald Steffen

Web site:
cahnrsalumni.wsu.edu

WASHINGTON STATE UNIVERSITY
World Class. Face to Face.

Lupkes hits a long drive—*back to Pullman!*

TODD LUPKES' RETURN to the Palouse began soon after receiving word of a job opening late one Friday night, with a Monday closing date. Six days, 600 miles, and one unfortunate deer later, Lupkes' wife knew it. "We're moving to Pullman, aren't we?" she said as he walked in the door of his Gig Harbor home.

Days later, Lupkes, a '92 graduate of the turf program at WSU, was hired as superintendent of the Palouse Ridge Golf Club, by CourseCo, the golf course management company contracted by WSU. WSU's premier Scottish-links style golf course opened in August.

"Ten months later I still have goose bumps. I can't even describe it—everything happened so fast," said Lupkes. "I am so thankful to have simply been given this opportunity to prove and show I have the skills."

According to Lupkes, experience by doing is the key to his success. At the age of 10, his family managed a

Todd Lupkes '92

nine-hole public golf course in Centralia, which they operated while living in the club house.

"The funny thing is, after living, working, and breathing golf for 10 years, I decided I didn't want to do it ever again!" said Lupkes. He entered college to pursue an interest in oceanography, but two years later his thoughts returned to the links. A meeting with Bill Johnston, long-time WSU turf professor, convinced him to transfer to WSU.

Lupkes plans to make the WSU turfgrass management program world class by mentoring and inspiring the many promising students and providing valuable learning opportunities at the golf course.

"The irony is that many of the people I work with now were also here back then," Lupkes said while reflecting on his WSU education. "Now it's a different relationship. I'm working with them, instead of passing them in the hall, and that's really neat. After what has happened in the last 10 months, I can't imagine where I'd go from here that's up, but I'd love to find out. Maybe a director of golf some day."

Display Garden made in the shade

BY **MIA PARRY**
MARKETING AND NEWS SERVICES

THE FIRST PHASE of the Horticulture and Landscape Architecture Display Garden began this spring with the construction of a shade garden. Weather delayed the beginning of construction, but the students working on it hoped to have it finished and in use by the end of summer. The garden replaces three old greenhouses destroyed a year ago between the French Administration Building and the Ensminger Pavilion.

Landscape architecture students working on the project are led by associate professor Phil Waite. The project gives students the opportunity to gain real-world experience with a client (WSU) that they design for, present plans to, complete all construction detailing, and coordinate with facility operations to maintain the area afterwards.

So far, the students have poured 6.75 tons of concrete (much of that was lifted at least twice by students, once on to the truck, then off the truck and into the on-site mixer), and spread 32 tons of gravel and 20 cubic yards of compost-topsoil mix.

"Some students were really into designing while others were more into the plant and materials selection. This is probably one of the best junior classes we've had," said Waite.

Overall, the project will take four to six years. The second phase will finish up the shade garden and perennials. The third phase features a native garden along the hillside with sun-loving plants and a rock garden, while the fourth phase completes the project with the planting of a grass garden.

Students working on the shade structure and planting the new Horticulture and Landscape Architecture display garden.

Turfgrass alum slides into career

BY **DESIREE KILIZ**, MARKETING AND NEWS SERVICES INTERN

THE AROMA OF FRESH CUT GRASS fills the air. Clean swept white mounds peek from the rust-colored dirt as the final minutes of day head towards the horizon. For Joe Hill, this scene is what his job is all about.

Hill, a December '07 WSU Crop and Soil Sciences grad who majored in turfgrass management, won one of four Sports Turf Managers Association National Field of the Year awards for Short Season A leagues, for his work at the Spokane Indians field. The award recognizes both a facility's excellence and the sports turf manager's expertise in his or her field.

Hill, a Coeur d'Alene native, worked his turf management position around his classes and homework in Pullman. Hill said his successes are due to those in his life and the education he received.

"My parents were a large part of my success; they've always been supportive. My peers, advisor, and professors at WSU and those who worked with me at the Indians also made a huge impact with what they taught me," said Hill.

Hill said his WSU education equipped him with the skills he needed for his career. He learned how to multitask, solve problems, and the basics of how to work with living plants, all building blocks for a winning turfgrass program. "I chose to come to WSU because it has a great turfgrass management program and a rich tradition. It also helped that the campus is close to home," said Hill, who is now working at Blackrock Golf Course in Coeur d'Alene.

Turfgrass alum Joe Hill, recipient of Sports Turf Managers Association National Field of the Year award

Grad student studies grizzly grub

EVER WONDER what grizzly bears in Yellowstone National Park really eat? If you ask Jennifer Fortin (photo above), a zoology Ph.D. student at Washington State University, she can tell you.

Fortin is conducting a three-year dietary analysis in the park focusing on the impact of the population decline of cutthroat trout on the grizzly diet. The study is currently in its first year.

Historically, cutthroat trout have been an important food resource for grizzly bears; however, with the illegal introduction of lake trout in the late 1980s the cutthroat trout population has been decimated, according to Fortin.

"There is one stream that feeds Yellowstone Lake, and in the past, it had over 70,000 spawning cutthroat trout—now there are only 500," said Fortin.

"Twenty-two species feed on cutthroat trout, including bears for which the fish used to be a major food resource. While cutthroat trout spawn in streams and are available for bears to eat, lake trout spawn in the lake and are not available for bears and other species to eat. The result is a serious impact on the species that depend on fish as a food resource," said Fortin.

WANT TO STAY CURRENT with what's going on in grape growing and wine making research, education, and outreach at WSU? Subscribe to Voice of the Vine, our free biweekly e-newsletter for coverage of WSU's ongoing partnership with the Washington wine and grape industry. Each issue brings you one or two short articles featuring profiles of researchers, students, and alumni working in Washington's world-class wine industry.

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Form follows fashion

BY **KATIE FLOYD**, MARKETING AND NEWS SERVICES INTERN

AIRBRUSHING AND TEXTILE DESIGN and manipulation were fresh trends found among students' collections showcased at this year's Mom's Weekend fashion show.

"Form Follows Fashion," the 25th annual Apparel, Merchandising, Design, and Textiles Department event, featured 18 student lines along with more than 100 student models.

Beautiful bridal wear, comfortable sportswear, and edgy designs fused with textile manipulation created some of the unique pieces presented at this year's show, according to fashion show director Carol Salusso, an associate professor in the department.

Students learn theory and find inspiration for their designs during the fall semester before they make their garments, select models, fit them, and create music and themes to present their lines at the spring fashion show, Salusso said. "The awards aren't the big deal," she said. "It's that everybody comes out of this process with portfolio work." The greatest value, she added, is the professional experience that students gain when they present their best work to an audience.

After the show, students add professional-quality photos of their line and a copy of the fashion show's DVD to their portfolio. "It is a huge personal endeavor for each and every one of them. It is their conduit to a career," Salusso said.

Students from Fashion Line Development and Special Event Production classes work together and independently to piece together the annual exhibition.

Judged on their lines' visual integrity, aesthetic appeal, design quality, and assembly, seniors Erin Corder and Debbie Christel were awarded "Best of Show" Mollie Pepper Outstanding Student Designer Awards.

Aerobic gear designed by Debbie Christel (in black dress).

Right: Airbrushed street clothes by Erin Corder (seated).

Wine auction tops $235,000 for second year

Bidding was fast and enthusiastic at the 2007 "A Celebration of Washington Wines."

FOR THE SECOND YEAR, the gala "A Celebration of Washington Wines" auction and dinner brought in a total of $235,000 to benefit the Washington State University Viticulture and Enology Program. Nearly 200 people attended the seventh annual gala held Jan. 26 at the Chateau Ste. Michelle Winery in Woodinville, Wash.

Over its seven-year history, the annual event has grossed more than $1 million to benefit the WSU program that trains aspiring wine makers and grape growers through certificate programs and a four-year horticulture degree.

"This year's proceeds will continue to build the endowment fund for the world-renowned chair in viticulture and enology that we are currently recruiting," said Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences. "Thanks to both those who attended and those who donated to the auction for helping WSU to create a 'perfect pairing' of a world-class viticulture and enology program in partnership with Washington's world-class wine industry."

Gates Foundation award to help Latino child care providers

A NEARLY $1 MILLION GRANT from the Bill & Melinda Gates Foundation will allow major expansion of a WSU Extension project aimed at increasing literacy among Latino child care providers, which in turn will improve the care of hundreds of children in the area.

The Gates Foundation has awarded $967,000 to WSU Extension for the Literacy and Educational Pathways for Latino Child Care Providers project, an outgrowth of the Spanish Literacy Project. The project was initiated and operated by a community coalition led by a team of WSU Extension educators in Franklin County. The grant runs from January 2008 through March 2011.

"The primary goal of the Pathways project is to improve the educational advancement of Latino child care providers and thus increase the quality of care for the children in their licensed family child care environments," said Kay Hendrickson, WSU Franklin County Extension director.

Hendrickson, along with the community coalition, started a pilot Spanish Literacy project in March 2007 with seed money from Women Helping Women Tri-Cities Fund and Bank of America. That pilot began with 28 family home child care providers, who care for nearly 150 children ages 11 years and younger. The child care providers meet every Monday, Wednesday, and every other Friday evening after work to learn how to write sentences, do basic math, and read stories in Spanish.

Bringing home the Apple (genome) Cup:

WSU, UW spearhead project to sequence Rosaceae DNA

SCIENTISTS at Washington State University and the University of Washington are spearheading a public, international effort to map and unlock the secrets of the apple genome to develop better tree fruit faster.

"The Washington apple is an icon of quality around the globe," said Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences. "This is a natural home for the advanced science necessary to map the tree fruit genome and actively study how it functions."

WSU scientists Amit Dhingra, Dorrie Main, and Ananth Kalyanaraman, along with UW researcher Roger Bumgarner, already are working to finalize a consortium of partners from Italy and France to New Zealand and South Africa.

"This initiative will establish Washington as the worldwide hub for Rosaceae functional genomics and is attracting internationally renowned scientists, quality graduate and undergraduate students to Rosaceae research at WSU," Dhingra said.

The Rosaceae family includes Washington's largest crop—apples—as well as cherries, peaches, strawberries, raspberries, roses, and nuts. In terms of economic volume, Rosaceae is the third most important family in the U.S. and other temperate regions of the world. Its aggregate wholesale value in the U.S. is more than $8 billion, representing 8.5 percent of total crop production value in the U.S. in 2006.

Emily Burt, right, and 4-Hers.

GPS training positions 4-Hers for the future

THROUGH 4-H and local schools, WSU Ferry County Extension educator Emily Burt actively encourages youth and families to become good environmental stewards by equipping them with the latest technological tools.

Burt teaches introductory GPS (global positioning system) classes for 4-H groups and local schools as well as adults in the county. She has worked with more than 100 young people and adults to provide them with in-depth training in GPS and skills to make critical land-management decisions.

Students ages 11 to 16 are mapping community assets, locating critical landmarks, and identifying areas in the forest where diseases occur. That information helps forest owners make better decisions about timber harvest and forest health.

Her goal is to involve children more in the community and to enhance the local economy.

"We also want to get kids outside," she said.

With the GPS skills Burt taught them, one Ferry County 4-H group is mapping and geocaching local attractions and historical sites to share some of their favorite spots with other kids and promote tourism. Their partners are the Ferry County commissioners, the chamber of commerce, and the historical society.

WSU's Plant BioSciences Building named for renowned wheat researcher

Washington State University's Plant Biosciences Building is now officially the Orville A. Vogel Plant Biosciences Building, named for a wheat breeder who made a tremendous impact on wheat production in the Pacific Northwest and around the globe.

"His discoveries had a profound impact in addressing world hunger and stimulating unprecedented economic growth in developing countries," said WSU President Elson S. Floyd before an audience of Vogel's former colleagues, friends, farmers, and current faculty at the naming ceremony in fall 2007.

Vogel, a USDA-Agricultural Research Service scientist and WSU faculty member from 1931 to 1973, led a team of researchers that developed Gaines, the first commercially successful semi-dwarf wheat. Released in 1961, the high-yielding, soft white winter wheat soon dominated production in the region. Yields of 100 bushels per acre became common. In 1990, semi-dwarf wheat varieties developed by Vogel were credited with adding $50 million annually to Washington's economy through increased yields.

The $39 million building named for Vogel houses faculty from four departments in CAHNRS and the plant transformation core laboratory of the Center for Integrated Biotechnology. The building is the first in a planned complex of connected research and education buildings east of Martin Stadium. It contains 31 research laboratories and four teaching laboratories.

Dean Dan Bernardo of the College of Agricultural, Human, and Natural Resource Sciences, left, and WSU President Elson S. Floyd, right, pose for a picture with Dick and Pat Vogel and a replica of a plaque for the Orville A. Vogel Plant Biosciences Building. Dick, who is O.A. Vogel's son, and his wife Pat, attended the dedication ceremony for the Vogel Plant Biosciences Building on Sept. 15, 2007.

Read more about Vogel and the "genes that sparked the Green Revolution" on the USDA-ARS history site at http://www.ars.usda.gov/is/timeline/green.htm .

Building biodiesel in Brazil

WORKING on the foundation for a new bio-diesel plant, doing feasibility studies, and learning Portuguese is exactly the kind of internship Washington State University senior Adele Durfey was looking for. She found it in Brazil, after thumbing through a John Deere publication.

Durfey, center, and classmates gather for a photo during a presentation to LEM College.

"When I first got here, I didn't know what to expect, but I've learned so many useful skills since I've been here," said Durfey, who graduated in May with degrees in international business and agricultural technology and management, and who is now living in Brazil.

Durfey works for Global Ag Investments, which is located in Luis Eduardo Magalhaes, Bahia, Brazil. The company facilitates investment opportunities for partners interested in diversifying risks through agricultural investments, according to the company's Web site.

"Currently, the company owns and rents approximately 30,000 acres in the area and is building a 30-million-gallon, multi-million-dollar bio-diesel plant in the near future," Durfey said.

"I'm helping to clean up the Web site for potential investors in the bio-diesel plant to look at first," Durfey said. "They can check out the company and then contact us via the site if they have questions."

In addition to her work on the Web site, Durfey conducted a feasibility study on popcorn. Global Ag Investments wanted to know if it would be feasible to grow popcorn, package it, and then sell it locally.

"I had to find all this information for that, like equipment costs, labor costs, and things like that," Durfey said. "It was difficult because I don't speak much Portuguese."

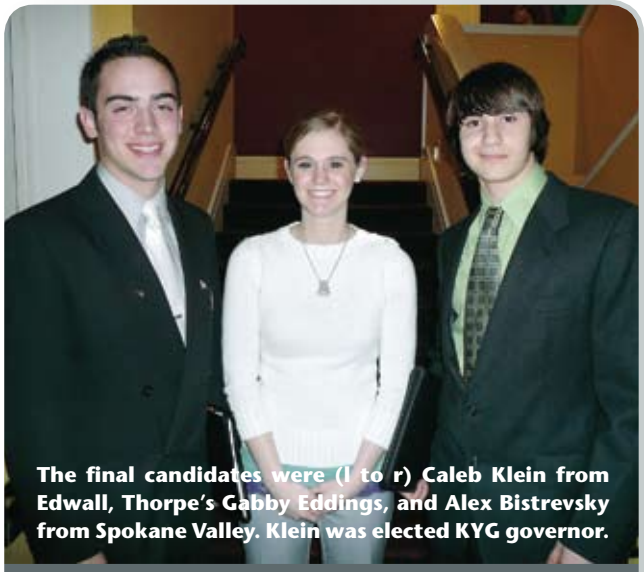
Durfey is learning the language quickly though.

"I'm starting to understand conversations more," Durfey said. "When people ask me a question I understand what their question is, but it's still hard to get the words out to respond."

Connections earns platinum

THE 2007 issue of *CONNECTIONS* magazine was selected as a Platinum Award winner in the 2007 MarCom Awards competition.

MarCom Awards is an international competition that recognizes outstanding creative achievement by marketing and communication professionals. There were over 5,000 entries from the U.S. and abroad in the 2007 competition. About 18% of the entries won the Platinum Award, the organization's top honor.



The final candidates were (l to r) Caleb Klein from Edwall, Thorpe's Gabby Eddings, and Alex Bistrevsky from Spokane Valley. Klein was elected KYG governor.

Election year sparks new lessons for 4-H Know Your Government participants

THEY CAME WITH CAMPAIGN BUTTONS, yard signs, and enough energy and enthusiasm to impress the most seasoned politicos. The nearly 300 attendees at the annual WSU Extension 4-H Know Your Government (KYG) Conference took politics into their own hands as they lobbied, gave speeches, and asked 4-H teens for their vote to elect the next KYG governor.

Twenty-one teen delegates vied for the position and came to Olympia prepared to discuss issues including transportation, energy, immigration, and health care. During the four-day event youth created a platform that took stands on those topics as well as education, the economy, the environment, and safety.

"Many adults think young people don't care about politics, but we're paving the way," said Michael Seidel, 18, a delegate from Deer Park who has been to the conference three times.

The candidates were narrowed to three with Caleb Klein from Edwall, Thorpe's Gabby Eddings, and Alex Bistrevsky from Spokane Valley taking the top spots. After more speeches and an extensive question-and-answer session the final vote was cast with Klein receiving the nod.

The 4-H KYG Conference serves to strengthen the connection between youth and our political and governmental processes through education, experience, application, and inspiration. Since it began in 1977, more than 7,000 teens have participated in the conference statewide.

300 teens *Rise to the Challenge* during 4-H Teen Conference

BY **DENNIS BROWN**, MARKETING & NEWS SERVICES

MORE THAN 300 TEENS, twice last year's attendance, came to Pullman at the end of June to attend the 2008 state 4-H Teen Conference.

The teens built robots, learned how the state crime lab examines evidence, found geocaches with GPS technology, and much more during three-days on campus.

"We asked kids what they wanted to learn at the conference," said Jan Klein, state 4-H leadership coordinator. "Their responses were how to get ahead in the future and how to make decisions about college and careers. They also said they wanted to have a whole lot of fun with kids across the state."

On the serious side, they learned the lowdown on college life, stress management, and how to deal with people in their lives who may have addictions.

The conference concluded following a college information fair on the Terrell Mall. Campus departments provided information about college and majors at a series of displays.

Photos, top to bottom, clockwise (Photos by Dennis Brown)**:**

- **Taping an interview for the Rising to the Challenge News Network.**
- **State crime lab scientist teaches teens how to examine evidence.**
- **Teens from Spokane County check out the library cupola during a campus tour.**
- **Cougar mascot Butch greets arriving Walla Walla 4-H'ers.**
- **Robots built by teens battle in Sumobot competition.**

DISCOVERIES

Who's the new kid on the block?

CYBER BULLY!

BY **HOPE TINNEY**

PARENTS KNOW that their children shouldn't be communicating with strangers over the Internet, but new research is finding that communicating with peers can be risky as well. That's right. All that social networking technology has the capability to increase antisocial behavior.

In line with national findings, a recent study of youth in Pullman found that nearly 20 percent of middle school-age children report they have either been the victim of or a participant in some type of Internet aggression. WSU researchers Nicole Werner and Matthew Bumpus, colleagues in the department of human development, set out to figure out what was behind that statistic.

"That term 'cyber-bully' gets thrown around a lot in the media," Bumpus said, "but we don't really know much about the characteristics of these kids."

Do they vary by age or gender? Are the same kids who are bullies on the playground also bullies in cyberspace? What are the attitudes or behaviors that seem to put kids at greater risk to be involved in Internet aggression?

Online time a factor

In an article under review for the Journal of Applied Developmental Psychology, Werner and Bumpus analyzed data collected from more than 300 sixth- and seventh-grade students over a two-year period. The data is part of a larger longitudinal study on school climate and child adjustment.

In looking specifically at the data involving computer-mediated communication, one intriguing finding was that boys and girls reported being involved in Internet aggression in about the same numbers. And the rate did not vary by grade level.

One factor that did significantly impact rates of Internet aggression was how much time students spent using computer-mediated communication devices such as text messaging, instant messaging, or e-mail. The more time kids spent communicating via a computer, the more likely they were to be a participant in or a victim of Internet aggression.

Bullies branch out

Some researchers—and pop psychologists—have hypothesized that people who engage in Internet aggression might be those who lack strength or stature in face-to-face encounters and have been victimized by their peers. That wasn't borne out by the research.

According to Werner, it appears instead that the kids who bully in cyberspace also bully peers in traditional contexts, such as school. This research also showed that students who were themselves victims of Internet aggression were more likely to become online aggressors.

Internet aggression, Werner said, seems to be most closely connected to relational aggression in traditional peer contexts. For instance, adolescents who use exclusion, or threats of exclusion, to manipulate a relationship are more likely to engage in aggressive behaviors online.

"The raw material for relational aggression appears to be heightened with online tools such as instant messaging and social networking sites," said Werner. Users can manipulate text as well as photos, and then distribute that information to a number of other people behind a shield of partial or complete anonymity.

"Nobody knows what is real," she said.

While Internet aggression appears to affect a minority of students, researchers still are working to determine its effects on the kids who do experience it. Nonetheless, Werner says, "I firmly believe that parents need to tightly monitor children's use of online communication tools during the elementary school years."

WSU Scientist Brings Expertise to Puget Sound

BY **DENNY FLEENOR**, MARKETING AND NEWS SERVICES

JOHN STARK IS A BUSY MAN. The entomologist and ecotoxicologist at the WSU Puyallup Research and Extension Center is engaged in a number of significant research projects, including one that is finding that combinations of pesticides are more toxic to salmon species than currently believed.

He recently co-authored a paper on the findings that has been submitted to the Proceedings of the National Academy of Sciences for publication. Last November, Stark was one of nine scientists named by Gov. Chris Gregoire to serve on the Science Advisory Panel for the Puget Sound Partnership.

"It's like having a second full-time job," Stark said. "But it's critically important work and a real honor to be chosen."

The Washington State Legislature created the Puget Sound Partnership in 2007 at the request of the governor to develop a long-term action plan for restoring the environmental health of Puget Sound by the year 2020. The projected cost for the effort is $8 billion.

The Science Advisory Panel's role is to provide technical expertise and counsel to the Partnership's governing body, the Leadership Council, headed by former U.S. Environmental Protection Agency director Bill Ruckelshaus. Stark says the panel is developing a science plan that will inform the action plan for restoration to be developed by the Leadership Council.

The competition to serve on the panel was stiff. Fifty-four people representing a broad range of scientific expertise and professional experience applied for the nine positions.

"Some even had Congressional representatives writing letters and lobbying on their behalf," said Stark. "I was nominated by former CAHNRS dean Jim Cook and got an appointment."

Stark said concerns about the health of the Sound are legitimate, and the task before the Partnership is daunting.

"It's fair to look at the situation in the Sound right now and say that some species will go extinct unless we can determine what's needed to save them," he said.

Ruckelshaus told the science panel at a meeting in April that what the Leadership Council needs from them is simple.

"He told us they want to know what constitutes a healthy Puget Sound, and how to get there," Stark said. "That's much more difficult than it sounds because we have no base line data to define what constitutes a pristine Puget Sound. I believe that the Partnership will need to take the basic approach of looking at what specific actions can be taken to improve habitat and food supplies for certain species that are having problems, like orca and salmon."

Population growth in the Puget Sound area and the accompanying development have been a big part of the environmental impact causing the deterioration of the Sound's health, and Stark said that means the Partnership's task will be an uphill battle.

"People continue to move here, and that means more traffic, more waste, and more pollution going into water while the Partnership works to reverse the damage that has already occurred," he said.

Still, Stark said he feels it's worth the effort, and he is optimistic and up for the challenge. And he believes WSU will play a vital role in the state's restoration effort.

"Puget Sound is incredibly important to life on the west side of the state, and WSU's role in restoring the Sound's health will be valuable to the state as well as to the university," he said.

Stark believes that WSU's role will go well beyond contributing its scientific expertise to this effort.

"I really believe that WSU Extension can play a major role in public outreach and education as the Partnership implements its action plan," said Stark. "After all, who else is in a better position to do that?"

WSU Beach Watchers named 'ENVIRONMENTAL HEROES' for salmon recovery work

BY **KATHY BARNARD**, MARKETING AND NEWS SERVICES

SALMON RECOVERY EFFORTS in the Whidbey Basin of northwestern Washington are more strategic thanks to a team led by two Washington State University Extension Beach Watchers who have been named "Environmental Heroes" by the National Oceanographic and Atmospheric Administration for their efforts.

NOAA annually distributes just 10 "Environmental Hero Awards" throughout the United States. This year, two of those go to Beach Watcher volunteers Bob Buck of Langley and Jim Somers of Oak Harbor. They are part of a team that monitors how juvenile salmon use pocket estuaries in the Whidbey Basin; the data they collect helps county planners develop salmon recovery strategies.

"This national award recognizes something we've known all along—WSU Extension Beach Watchers are the environmental heroes of the Puget Sound area," said Linda Kirk Fox, associate vice president and dean of WSU Extension. "The science-based training these volunteers receive makes them invaluable partners in preserving the health and well-being of the sound and surrounding water systems."

Don Meehan, director of WSU Island County Extension and founder of the Beach Watcher program in Washington, agreed. "Bob and Jim represent the high caliber of individuals in the WSU Beach Watcher program. This work their team is doing is fundamental to communities valuing Puget Sound and protecting its natural resources," he said.

Meehan also credited the Island County Marine Resources Committee, a partner that provided funding for equipment used in the project. "They are key supporters of this work and the Beach Watcher program in general."

Buck, a retired naval aviator, and Somers, a retired orthodontist, have been involved with the salmon seining project in Island County since 2004 in four areas—Harrington Lagoon, Race Lagoon, Ala Spit, and Elger Bay. Twice a month, using an 80 foot by 6 foot, small beach seining net, they capture the fish, identify them by species, count them, measure them, and then release them. They also analyze water quality at the sites for temperature, salinity, and dissolved oxygen.

The work is tide dependent. "So if high tide is at six in the morning, that's when we need to be out there, rain or shine," Buck said.

The data collected by the team goes to NOAA for further analysis, then back to the fisheries biologists at tribal partner Skagit River Systems Cooperative who compile it into reports that salmon recovery planners use to prioritize and implement salmon recovery projects.

Beach Watchers is an award-winning WSU Extension program, launched in Island County in 1989 and later expanded throughout Puget Sound. WSU Extension educators have trained over 560 volunteers in seven counties to protect and preserve Puget Sound through education, research, and public outreach.

Volunteers can choose from specific activities such as seining projects to survey populations of juvenile fish, or serve at the Sound Waters marine and environmental public seminar.

To learn more, visit the Beach Watchers web site:
http://beachwatchers.wsu.edu/regional/index.php

Happy Birthday! Ferdinand's Turns 60

ALL STORIES BY **DENNIS BROWN**
MARKETNG AND NEWS SERVICES

THIS BRIEF ITEM appeared on the front page of the *Daily Evergreen* on Monday, Oct. 11, 1948:

Dairy Dept. to Open Counter in Troy Hall

"The department of dairy husbandry will start operating a dairy counter serving ice cream, plain and chocolate milk on the first floor of Troy hall near the north entrance.

"Assistant professor L. J. Manus will be in charge, assisted by dairy manufacturing students. All products served will be made in the department, and prices will be comparable to those charged downtown.

"Later on, when obsolete equipment has been replaced, milkshakes, cheese and possibly other dairy products will be sold. An open house is planned for sometime in November when the plant is complete. Such ventures have been very successful at other schools, it was reported."

The dairy counter, which did not acquire its Ferdinand's appellation until a year later, actually opened on Sept. 24. It was the byproduct of a decision by Washington State College to take over management of the Troy Hall Creamery, which had been operated by the Milk House, a private dairy company, since 1926.The contractor had processed milk from the college's dairy herd and supplied milk products to college dining halls. The Milk House sold some dairy products at a retail outlet in downtown Pullman.

FERDINAND'S TIMELINE

1890

Washington Agricultural College begins dairy manufacturing education.

1898

First cheese-making class for industry.

Ferdinand's became the campus retail outlet for the WSC-managed Creamery. In the beginning, Ferdinand's offered milk and three flavors of ice cream. It is not clear if cheese was on the menu. The first week, Ferdinand's took in a total of $9.42, according to the receipts that have been preserved to this day.

From those humble beginnings, the Creamery and Ferdinand's have flourished. Last year the self-sustaining operation generated about $4.5 million in sales of cheese, ice cream, and coffee, according to Russ Salvadalena, '77, Creamery manager since 2000.

Income generated by sales pays the salaries of 11 full-time employees, about three dozen part-time student workers, and supports one faculty member position and two or more graduate students in WSU's food science department.

That's part of the Creamery's mission, according to Salvadalena. "Our mission," he said, "is to provide teaching and research opportunities to the university and the dairy industry, an exceptional work experience to student employees, and financial support to students and the university."

Ferdinand's cash cow is Cougar Gold, which accounts for almost 80 percent of cheese sales. The sharp, white cheddar cheese was developed in the 1930s and 1940s by WSU dairy scientist Norman S. Golding while conducting research aimed at creating natural cheeses that could be vacuum canned.

At the time, vacuum canning was viewed as a potentially good method for storing, aging, and transporting cheese. Plastic packaging materials had not been invented and wax packaging sometimes cracked, leading to contamination.

Carbon dioxide was the main obstacle that Golding had to overcome. Cheese develops carbon dioxide

(continued on page 17)

Ferdinand's Fun Facts

WSU's 140-cow dairy herd and 35 dairy animals owned by the Cooperative University Dairy Students, are the source of the raw product processed into cheese and ice cream sold by Ferdinand's.

The live bacteria culture used to start Cougar Gold has been maintained by students for 60 years.

Cheese is made daily; ice cream about twice a month.

Ferdinand's is one of 15 to 20 university-owned creamery operations nationally.

Only one-quarter of the students employed by Ferdinand's are food science students. Most major in other fields.

A limited quantity of Cougar Gold aged three years will be offered this fall. Cougar Gold is normally aged for one year.

Ferdinand's mail order business began in 1953, according to the earliest records.

It takes 100 lbs. of milk to produce 10 lbs. of cheese

The Creamery processes 12,000 to 16,000 lbs. of milk daily.

Today, Ferdinand's sells eight flavors of cheese and 18 to 20 flavors of ice cream. Last year, customers purchased 200,000 cans of cheese and consumed 12,000 gallons of ice cream.

About a quarter of Ferdinand's cheese sales are over the counter. Two-thirds is mail order. The Bookie and a handful of other retailers sell the rest.

To the best of our knowledge, Cougar cheeses are the only natural cheeses manufactured in the United States that are packed and aged in tins.

1926

Troy Hall dedicated.

1948

Ferdinand's opens in Troy Hall on Sept. 24. Receipts for first week total $9.42.

1953

Mail order cheese business begins.

Rose Buster, '08, enjoys a Dirty Dawg Sundae, an Apple Cup favorite. (Photo by Shelly Hanks)

the scoop on FERDINAND'S ICE CREAM

IT WAS FRIDAY, SEPT. 24, 1948, the day Ferdinand's opened. Enrollment at Washington State College had hit 6,458, "nearing an all-time record," according to the *Daily Evergreen.*

"Mr. Blandings Builds his Dream House," starring Cary Grant, Myrna Loy, and Melvyn Douglas, was playing at the Cordova, and folk singer Burl Ives was coming to town to perform at Bohler Gym.

At the Dairy Bar, as Ferdinand's was first known, students had a choice of just three ice cream flavors: vanilla, chocolate, or strawberry. A scoop cost seven cents. They also could buy milk and cream in bottles and perhaps Cougar Gold and American Cheddar. That is a bit uncertain.

Receipts for the first day of business totaled $2.79 and just $9.42 for the first week of business, according to Russ Salvadalena, current creamery manager. That's a far cry from Ferdinand's current weekly average take of $29,000.

The Dairy Bar's existence was not well-known around campus, recalled Wey Simpson, '50. "It was a little off the beaten track. I think most people found it because somebody told them where it was," he said.

Simpson, who received WSU's Alumni Achievement Award in 1997 for a distinguished career in broadcasting, was one of the students who did. "It was good, even then," he said.

Flavorful future

Ferdinand's offers 18–20 ice cream flavors today. They fluctuate with demand as well as with the season.

"Certain ones are kind of traditional," Salvadalena said. "The pumpkin and eggnog are seasonal. About October first, we will start bringing out the pumpkin flavor. About Thanksgiving time, we'll bring out the eggnog flavor."

Vanilla is the most popular flavor today, followed by Cookie Dough, Blackberry Ripple, Chocolate Peanut Butter, and Tin Lizzie, a vanilla with a swirl of caramel and chocolate covered toffee pieces.

Some flavors, once popular, have disappeared because the flavoring agents have become difficult to get. "Butter Brickle and Coffee Brickle were long-standing ones that were there when I went there," said Marc Bates, '70, '76, who worked at the Creamery as a student in the 1960s and managed the Creamery from 1974 to 2000.

"The candy maker that made those particular flavoring materials was liquidated in the 1970s," Bates said. "The formula was purchased by another company, and that company decided not to sell it to us in the small quantities we could use.

1968

WSU's Creamery produces about 20 tons of cheese annually; ½ is Cougar Gold.

1973

Creamery produces 30,000 cans of cheese.

1979

Deliveries of milk to dining halls ceases.

"A small manufacturer like the Creamery can't use up a truckload of Coffee Brickle in a reasonable amount of time," Bates said.

Coffee Brickle has been replaced by Cappuccino Crunch.

The first peanut butter flavored ice cream in the world was developed at Ferdinand's, according to a 1968 article in the Spokane *Spokesman-Review*. Ed Olson, who was creamery manager from 1951 to 1973, and his staff were credited with the innovation.

"Peanut butter was a tough one because peanut butter is so ugly to work with at low temperatures," Bates said. "When you get it to zero, it's almost impossible to scoop. Ed worked out a procedure to thin the peanut butter with sugar syrup that would lower its freezing point so it didn't become so hard or unmanageable in an ice cream product."

Recently, Ferdinand's staff has concocted special sundaes to feature on football weekends and other occasions. Some sell better than others.

"During Apple Cup Weekend, the Dirty Dog Sundae has become pretty popular," Salvadalena said.

It is chocolate peanut butter ice cream with crushed Oreo cookies on top. "Like dirt," Salvadalena said. A lot of people enjoy it.

Some of the other football sundae items, such as the Sun Devil Meltdown are not quite so popular. "People enjoy the name, but they're not that crazy about having Red Hots on their ice cream sundaes. We don't sell very many of them but we have a lot of fun with it," Salvadalena said.

"Lemon Chiffon is very popular on Mom's Weekend, so we try to have it available then," Salvadalena said. "We don't have anything special for Dad's Weekend. We try to make sure we have a lot of milkshake stuff available."

Hidden treasure

While Cougar Gold has won the major share of attention in the media over the years, Ferdinand's ice cream has not been ignored. Seven years ago, Leslie Kelly, a staff writer with the *Spokesman-Review*, was moved to write a feature on the best place to get ice cream shakes in the region based on a pilgrimage to Pullman. She described Ferdinand's as "an undiscovered treasure."

It's a treasure that's being discovered by more people every year. Last year, Ferdinand's employees filled cones and dishes with almost 53,000 scoops of delicious ice cream.

Two new seasonal flavors are on tap for this fall.

"I'm hopeful we'll have root beer float ice cream available," Salvadalena said. "It's a vanilla ice cream with a root beer ripple. We're also coming out with a black licorice ice cream. People who like black licorice will like this one."

"A small manufacturer like the Creamery can't use up a truckload of Coffee Brickle in a reasonable amount of time."

Marc Bates
Creamery manager, 1974–2000

Norman Golding holds the culture that make WSU's canned cheeses possible.

(continued from p. 15)

as it ages, causing cans to bulge. Golding developed a cheese using adjunct cultures that eliminate gas production. The cheddar-like cheese was named for him and the mascot of university athletic teams.

Cougar Gold and Cougar Cheddar were the first cheeses offered by the Creamery. During the 1950s and 1960s, raw milk versions of Cougar Gold called Bam and Cougar Cheddar called Ram also were available. "They had a slightly different flavor, but they weren't flavored cheeses," said Marc Bates '70, '76, who began working in the Creamery as a student in the 1960's and managed the facility from 1974 to 2000.

"As far as I know, Caraway was the first cheese that had a flavor compound added to the cheese," he said. "It was there in the 1960s. I don't know when it was first done."

Viking, a mild-flavored, semi-soft cheese, was introduced in the early 1970s. It was created by Joe Muller '70 and Paul Nelson '70, two of Bates' classmates in food fermentation class.

Not all cheese innovations have found a niche in the market. Reduced Fat Viking, Cracked Pepper & Chive, and Italian all failed to find a substantial fan base and were discontinued.

1985 & 86

American climbers take Cougar cheeses to the top of Mount Everest.

1986

Annual Cheese-making Short Course begins.

1992

Ferdinand's moves to new Food Quality Building. Lattes added to menu.

While Cougar cheeses are sold in 30-oz. cans now, at various times during the 60-year history of Ferdinand's, they have been packed in 40-ounce, 4-lb. and 4-½ pound tins, depending on the availability of cans.

"The Creamery doesn't use a lot of cans, so the managers have had to look for cans they could easily adapt," Bates explained. "You can change the height of the can without any major capital expense, but not the diameter. That's why we have been hung up all these years with a 6-inch diameter can because the whole facility would have to be re-tooled to change the diameter."

The Creamery and Ferdinand's moved from Troy Hall to its present location in the Food Quality Building, north of Clark Hall in 1992.

The plant size doubled to 15,600 square feet, adding production capability. The new facility offered seating for customers and a viewing room where visitors can watch cheese being made.

A 13,000-square foot annex opened on the east side of campus in 2000. Half of the space was devoted to refrigerated storage, according to Salvadalena. In late 2005, the refrigerated storage warehouse was increased in size by another, 6,500 square-foot addition.

"Since most of our cheese is aged at least 12 months before sale, it was crucial to us to have a space where we could age our cheese at a consistent temperature in a single space," Salvadalena said. "Prior to that, we had cheese aging in small Pullman and Moscow warehouses. It was difficult to keep accurate inventories and rotate product by dates."

A telephone call center and a shipping and packing facility occupy the rest of the space. Between Oct. 15 and Dec. 15, about 40,000 orders of cheese are packed and shipped to customers around the world.

New equipment, elimination of less popular cheeses, and the new storage facility has made it possible for the Creamery to overcome a long-standing problem: not having enough Cougar Gold on hand to meet heavy demand during the holiday season.

"We haven't run out of Cougar Gold the past two years," Salvadalena said.

Learn more about Ferdinand's and its 60th anniversary promotions at http://www.wsu.edu/creamery/ferdfront.htm

Helen Compton (right), wife of Wilson Compton, WSU president from 1945–51, was instrumental in naming Ferdinand's.

Creamery employees make a batch of Crimson Fire cheese (below).

WSU's current Creamery manager, Russ Salvadalena (bottom), poses with one of the signs salvaged from Ferdinand's original Troy Hall location.

Photos by Shelly Hanks.

1993

Cougar Gold wins first place at the American Cheese Society contest.

1997

Creamery produces 168,000 cans of cheese.

2000

Creamery Annex is built. Internet sales begin.

Who owns oldest can of Cougar Gold?

WHO OWNS THE OLDEST unopened can of Cougar Gold, WSU's signature cheese?

At least for now, that distinction may belong to Robert L. Russell, who earned a degree in hotel and restaurant administration and business administration at WSU in 1976.

Tucked away in his refrigerator in Costa Rica are eight cans of WSU cheeses, including two cans of Cougar Gold manufactured in 1973 and three cans of American Cheddar dated 1972. They are part of a stash of cheeses Russell began buying when he came to campus in 1972.

"I was in the hotel restaurant program and was familiar with Ferdinand's Dairy Bar and the creamery," Russell said. "I always liked nice things, so I picked up one or two cans. I noticed that one had a date older than the other, so I took the oldest date.

"It just sort of became a habit. I would collect a few cans and decide to save them for a couple more years and see what the difference in taste is. Pretty soon, I had about 27 cans."

Russell lugged 27 cans of Cougar cheeses from Pullman to Seattle in a portable ice chest in 1975 where he completed his degree work at the Seattle Center for Hotel and Restaurant Administration.

He has taken the cheese with him during a career that has taken Russell from Seattle to Bothell, California, Seattle again, and few years ago, to a suburb of San Jose, Costa Rica, where he bought a retirement home.

"For awhile, I had a small 4-cubic foot refrigerator for many of them," Russell said, "but as I am now down to nine cans, things are much more manageable.

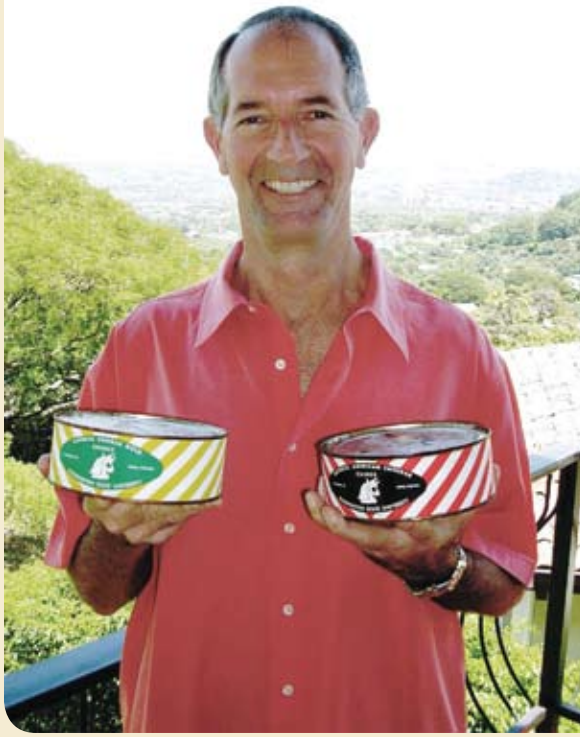
"The cans that I have opened have been very good," he said, a little bit crunchy, but it tastes like aged cheddar to me."

Amino acids separate from the cheese as it ages, explained Eric Needham, supervisor of Ferdinand's Ice Cream Shoppe. "It resembles salt crystals which makes the cheese a bit crunchy. It has no affect on food safety."

Last fall, Russell sent an e-mail to the WSU Creamery to find out if his forbearance has set any records.

"It's the oldest can of Cougar Gold we've heard of," Needham said. "If anyone has an older can, we would love to hear about it."

Alas, Russell's collection of Cougar cheeses—down one can since he contacted the university last fall—may have made their last move. "It looks like I might be spending a couple of years in Italy with a young lady I met," he reported recently. "I don't know if my luggage will allow the added weight of cheese."



Robert L. Russell, '76, poses with the oldest known unopened cans of Cougar cheese.

If you have an older can of Cougar Gold, contact the Creamery by e-mail at creamery@wsu.edu.

CHILI CON QUESO DIP

Serve with tortilla chips for any Cougar football game!

1 cup chopped onion
2 cans (4oz each) green chilies, chopped and drained
2 large cloves garlic, mashed
2 Tbsp cooking oil
1 lb Cougar Gold Cheese
1 tsp Worcestershire sauce
¼ tsp paprika
¼ tsp salt
½ cup tomato juice

Saute onion, green chilies and garlic in oil until onion is tender. Reduce heat to low, add remaining ingredients except tomato juice. Cook, stirring constantly, until cheese is melted.

Add tomato juice gradually until dip is the desired consistency. Place over hot water to keep warm. Makes 3¼ cups of dip.

clip and save

Visit the WSU Creamery Web site at **www.wsu.edu/creamery/recipes.htm** to discover more than 30 recipes incorporating Cougar cheeses. You can also share your favorite Cougar recipe.

2000

Cougar Gold tops its class in the World Cheese Awards in England.

2003

The *LA Times* publishes a feature on Cougar Gold and Creamery.

2008

Cougar Gold highlighted in *Beverly Hills Magazine.*

A match made in Heaven…or at least on the Palouse…

WSU, UI merge departments to create School of Food Science

Students from both WSU and the UI have long had the option of working together in the WSU Creamery, where Cougar Gold cheese as well as delectable ice cream is produced. Photo by Brian Clark.

Barry Swanson, WSU Food Science Professor and scientist, is one of the world class faculty members that students from both universities will share in the newly created School of Food Science. Photo by WSU Photo Services.

AFTER A LONG ENGAGEMENT, and an even longer friendship, the food science departments at Washington State University and the University of Idaho are merging. The move to form the joint School of Food Science will make them unique among the nation's universities.

"A combined School of Food Science broadens the opportunities available to students, expands the research possibilities, and offers a wider range of professional expertise to better serve both states," said Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences. "It is a smart move at the right time."

John Hammel, dean of the UI College of Agricultural and Life Sciences, agreed. "This step will help us to serve students, support research and the industry while taking advantage of strengths at both universities," he said.

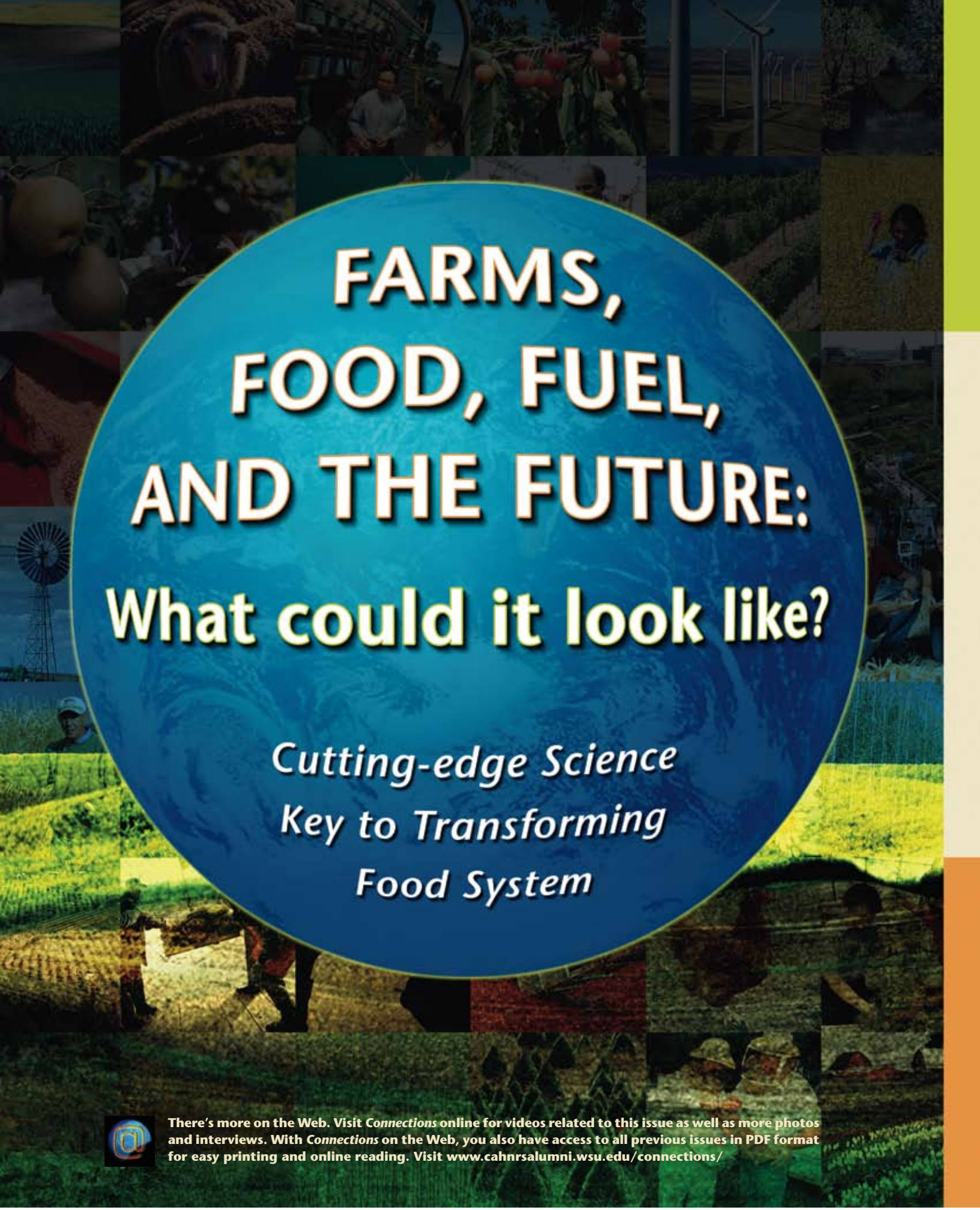
Students will continue to take required courses at each institution, and faculty members will work together on issues important to both states and the nation.

The culture of academic cooperation reaches across the two universities which cross-list hundreds of classes. The two food science departments cross-listed 21 classes for the next academic year. Classes start at Idaho on the half hour and on the hour at WSU, so students can travel the seven miles between campuses and get to class on time.

The cooperation began nearly two decades ago with informal sharing and collaboration among faculty, staff, and students. The relationship became more formal in 1996 with the cross-listing of courses. The new agreement between the two universities to create the joint School of Food Science will strengthen ties further.

Food science recently earned the label as one of the coolest careers around, and with an average salary of $53,810, one of the most lucrative. CNN.com posted the assessment this summer, noting that "food scientists spend their days in laboratories developing and perfecting new flavors."

More information about the School of Food Science is available at www.sfs.wsu.edu.



FARMS, FOOD, FUEL, AND THE FUTURE:

What could it look like?

Cutting-edge Science Key to Transforming Food System

There's more on the Web. Visit *Connections* online for videos related to this issue as well as more photos and interviews. With *Connections* on the Web, you also have access to all previous issues in PDF format for easy printing and online reading. Visit www.cahnrsalumni.wsu.edu/connections/

Feed the world.
Power the planet.
Save the environment.

It's a tall order by any measure, but especially when you consider that experts predict that by 2035, the world population will grow to more than eight billion human beings. During that same timeframe, Washington State is expected to add three million to its current population of six million.

BY **KATHY BARNARD**, MARKETING AND NEWS SERVICES

COVER STORY

WHAT DOES THAT KIND OF GROWTH MEAN? It means eight billion hungry mouths to feed. It means increased demand for petrochemicals just as oil is becoming more costly and scarce. It means intensified competition for water between residential, agricultural, and other users. It means growing more on less as the amount of land dedicated to food production shrinks.

At the center of the issue is the agricultural enterprise of the 21st Century. How do you build a modern food system that is productive, competitive, ***and*** sustainable? With science. Innovative, transformational science. The same way Washington State University and the United States led the global "green revolution" in the 1960s.

"WSU has to do the best science we can," said John Gardner, WSU vice president for economic development and Extension. "Plant science is key because it's the place where solar energy is converted to carbon. And we need to be urgent about it. We need to rise to the occasion."

Today's transformational science starts at the most basic level of life—the gene. WSU has assembled some of the finest scientists in the world to help unlock the genetic secrets of all sorts of plants with an eye toward developing new, better varieties faster.

For example, WSU scientists are spearheading a public, international effort to map and unlock the secrets of the apple genome to develop better tree fruit faster. The vision is to create at WSU a genomics knowledge base of Rosaceae—which includes apples and other tree fruit as well as cherries, peaches, strawberries, raspberries, roses, and nuts—that will translate into improved and innovative varieties for growers in Washington and worldwide.

But is it truly transformational? Absolutely, according to Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences, and representatives from Washington's agriculture industry.

"Genomics, genetics, and bioinformatics are the next major technological breakthrough that will revitalize and are revitalizing most industries within plant sciences," Bernardo said.

Travis Allen,'00, general manager of Allan Brothers Fruit at Naches, clearly sees the impact of that science. "The WSU team is going to be able to give us the map that tells us how the apple works," he said. "WSU is developing the hammer that is going to let us build a better building, and great things are going to happen."

The partnership between scientist and grower has made American agriculture what it is today, according to Scott Yates, director of communications for the Washington Grains Alliance in Spokane.

"The march of science is amazing," he said. "Just look at how precise it has been in its ability to kill specific insects and weeds."

And, Yates noted, the increase in wheat yields and quality are directly linked to the breeding and introduction of new varieties developed through science by WSU and other researchers.

How does science help? In production agriculture, it helps by providing plant breeders with better information about what genes control what traits

(continued on page 27)

Growing Washington: A New Approach

BY **DENNY FLEENOR**, MARKETING AND NEWS SERVICES

The trend toward fresh, locally grown foods is helping sustain small-scale farms, many that sell through community supported agriculture programs and farmers' markets in the Puget Sound area.

Clayton Burrows is working to establish new approaches to supporting urban edge farmers while improving the delivery of locally produced foods to urban areas.

Burrows is a cofounder of Growing Washington, a nonprofit farm cooperative, and a research associate with the WSU Small Farms Program. He brings his first-hand farming knowledge to teaching the program's popular Cultivating Success courses aimed at helping small growers succeed.

Growing Washington operates five community farms and coordinates multiple community farming projects. Burrows said that their farms provide fresh food for sale at 25 farmers' markets and through two CSA programs, as well as supplying several local restaurants. One of their Whatcom County farms grows food specifically for the Bellingham food bank, and another supplies a CSA program for low-income people through the Bellingham Food Cooperative.

"We provide literally tons of quality fresh food to the needy," says Burrows. "It's exciting to be able to get them A-1 top quality food."

The organization's farms also provide opportunities for those interested in farming to do so without facing the obstacles of finding affordable land and buying equipment. Business is good according to Burrows.

"We're actively recruiting farmers and we're giving people who have taken the Cultivating Success course the opportunity to apply what they've learned," he said.

Burrows said that Growing Washington's approach has been to team a group of experienced Latino farmers with a group of 20-somethings interested in learning to farm.

"We get the expertise of the farm workers and the energy of the young people," he said. "The average age of our farmers is 26, where nationally it's 56."

In addition to operating its own farms, Growing Washington provides a distribution system for 13 Puget Sound area farms, helping them get their food to urban CSA subscribers, restaurants, and soon to school cafeterias.

They operate a fleet of refrigerated trucks that make the rounds of several farms and deliver their goods to a variety of markets and restaurants.

"We're trying to maximize efficiency," says Burrows. "We're keeping costs down for the farmers by providing the infrastructure to get their goods to market for them."

Growing Washington is currently working with the Auburn School District to set up a system to provide fresh, locally grown produce to the district's school cafeterias as authorized by "farms to schools" legislation passed in the last legislative session.

The organization is working to create space to grow a few specific crops, such as potatoes, for the school district as well as drawing from its own farm facilities.

Burrows said that Growing Washington will be working with WSU to document the costs involved as well as productivity and yields.

"We want to prove the concept can work so that others can step in and begin making more local produce available to schools," Burrows said.

Unlocking the Bioproduct Potential of Plants

BY **DENNY FLEENOR**, MARKETING AND NEWS SERVICES

IT HAS TAKEN LESS THAN A CENTURY for the industrialized world to get hooked on oil. We're fuel dependent, and supplies of this finite resource now are dwindling. Only recently, as crude oil prices increased more than fivefold, have we developed a sense of urgency about needing to break our petrochemical dependence and develop viable alternatives.

"There is now a recognition that perhaps more than 50 percent of the earth's petrochemical resources are gone," according to Norman Lewis, Washington State University Regents' Professor and director of the university's Institute of Biological Chemistry. "And that has occurred essentially in the last 80 years that we've been using them."

Look back to the late 19th century, Lewis said, and most of the products consumed, including industrial materials such as the pine resin used in shipbuilding, were plant-derived until the petrochemical industry developed synthetic alternatives.

"With the escalating cost of oil, political turmoil in oil-producing regions, and the realization that oil reserves are diminishing more quickly than ever before, one is going to have to find some sort of replacement," Lewis said. "The question is whether we can come up with plant materials that can truly replicate petrochemical components."

No More Cheap Energy

Today's high food and fuel prices simply mean that we are finally paying the true price for their consumption, according to John Gardner, WSU vice president for Extension and economic development.

"One of the big issues we're in the midst of is coming to terms with the cost of food, fuel, and natural resource products for which we haven't been paying the full price," Gardner said. "We have subsidized food prices and the supply chain that grew out of the industrial era—essentially paying the price with our taxes and our environmental quality."

Regardless of what petrochemical alternatives can be successfully developed, the era of cheap energy is over, according to David Granatstein of WSU's Center for Sustaining Agriculture and Natural Resources.

"We're never going back to cheap energy, and that's a fundamental shift that is going to ripple through the economy for a long time to come," he said. "It's the realization that it's not the dollar that is fundamental to our economy, it is energy."

Granatstein pointed out that the recent debate over growing crops for food versus fuel caught most people by surprise, but the link between the two is obvious.

"The world food system relies on synthetic nitrogen fertilizer which in turn is reliant on natural gas, so when fuel prices go up so do food prices," he said. "It's not as simple as just switching to growing plants for fuel, because to grow the millions of tons of biomass needed will require nitrogen fertilizers too."

Meeting the Challenge

WSU researchers are tackling that challenge on multiple fronts, searching for the keys to unlock the potential to use plant material—not only for energy but to replace a variety of petrochemical-based products, from plastics to fertilizers.

In May the $24.8 million Bioproducts, Sciences and Engineering Laboratory was dedicated on the WSU Tri-Cities campus. There, WSU faculty and students will collaborate with Pacific Northwest National Laboratory on developing and commercializing biofuels and bioproducts that are environmentally compatible. The lab is wasting no time in pursuing its primary focus of addressing national energy independence and regional economic development.

This spring in Pullman, Lewis received an $840,000 three-year grant awarded jointly by the U.S. departments of Agriculture and Energy to research the potential for developing hybrid plants from which not only fuels but other petrochemical-derived products such as plastics can be refined.

"Biofuels get most of the attention, but they're just the tip of the iceberg," said the USDA's Jim Fitzgerald, a WSU alumnus, in announcing the grant. "More and more of the things we make from oil we can now, in a sense, grow in the fields."

Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences, pointed out that the grant was one of only 21 proposals to receive funding out of 750 proposals.

"This grant reinforces WSU's leadership position in the plant sciences nationally," he said. "Piece-by-piece, our scientists are contributing to the development of viable, sustainable replacements for petroleum-based products."

A generator in this shed at the VanderHaak Dairy in Whatcom County burns methane from anaerobic manure digestion to generate up to 450kw of electrical energy for sale to the Northwest power grid.

COVER STORY

Four of the contributors to electrical generation at the VanderHaak Dairy Farm in Whatcom County.

Lewis and his research team are focusing on non-food crops, such as fast-growing hybrid poplar.

"We're looking at whether we can modify plants genetically or through breeding to produce a material that could, through a one-step chemical process, produce alkyl-benzenes that can be used as aviation fuel and in other high-energy hydrocarbon applications," Lewis said. "The key is to see if we can work in harmony with nature to produce these things while asking nature to change what it has been doing for a long time."

While Lewis is studying the potential for plant lignin, his colleague in the Institute of Biological Chemistry and fellow Regents' Professor John Browse is focusing his research on the lipids found in vegetable oils.

Browse said, "We're investigating ways to use plant oils to substitute for petroleum products in making plastics and resins and other things that enhance our everyday lives."

Browse and his research colleagues are shooting for an ambitious goal.

"Our plan is to replace the industrial plants on the Texas Gulf Coast with crop plants in the fields of Washington and other states, where the plant is doing the chemistry using enzymes before we harvest the oil," he said.

What about Waste?

Washington State already may be producing enough biomass to generate a significant amount of energy, if the technology and the economics can be made to work. It's in the form of municipal and agricultural wastes.

In 2005 researchers from the CAHNRS Department of Biological Systems Engineering and the state Department of Ecology published a statewide "biomass inventory." The inventory cataloged field residues, animal manures, forestry residues, food packaging and processing waste, and municipal waste across 45 geographic areas of the state. They found that the state, on average, produces the dry equivalent of nearly 17 billion tons of "under-utilized" biomass each year.

Assuming the application of existing technologies which use combustion or anaerobic digestion to convert waste to energy the researchers estimated that the wastes could fuel 1,759 megawatts of electrical generation.

This year, the state Department of Ecology awarded nearly $730,000 in "Organic Waste to Resources" grants to WSU researchers and their collaborators to explore opportunities to convert all that waste into fuels and other products. Five research projects will investigate everything from converting municipal sewage wastes to a safe, effective soil amendment, to converting food waste to biodiesel, and converting waste biomass to biofuels.

An Early Success

Thanks to the Climate Friendly Farming project, a program of WSU's Center for Sustaining Agriculture and Natural Resources, a particularly challenging agricultural waste is already contributing electrical energy to the Northwest power grid—manure.

The state's first commercial-scale anaerobic digester capable of processing manure from up to 1,500 head of cattle was constructed on the VanderHaak Dairy in Whatcom County. Methane gas extracted in the process fuels a generator that can produce 450 kilowatts of power that the dairy sells to the power grid.

In Pullman, researcher Shulin Chen and his colleagues in the Department of Biological Systems Engineering have developed and continue to refine a small-scale digester for use on smaller dairy farms. The project's Chad Kruger said that not only can anaerobic manure digestion contribute to electrical generation, it can result in significant reductions in greenhouse gas emissions.

"Methane is about 23 times more potent as a greenhouse gas than carbon dioxide and roughly 65 percent of methane in the atmosphere comes from agriculture, much of it from dairy cattle," Kruger said. "If half of the state's 250,000 dairy cattle were on farms using anaerobic manure digestion, up to 100 million pounds of methane could be captured annually."

No Quick Fix

Despite a growing sense of urgency about finding petrochemical alternatives, Lewis warned that it will take time and that there will be no "magic bullet" solutions to our energy situation. "There likely won't be a single solution, and it's likely that conservation will play an important role in addressing our energy situation," Lewis said. "Some scientists are very optimistic, but one has to temper optimism with the fact that we have several decades of research in these areas and no one has yet come up with a large-scale solution."

¡Si Habla Agricultura!

BY **MIA PARRY**, MARKETING AND NEWS SERVICES INTERN

Hilario Alvarez holds some of the organic peppers he grows on his farm.

COVER STORY

THE FASTEST GROWING population of new farmers in Washington State, and the nation, in recent years are Latino. Malaquias Flores, Hispanic Farmers Coordinator with WSU's Yakima County Extension office, has been helping many new farmers buy their first piece of land.

"Everyday, I help more Latino farmers get into the business. They are the ones buying orchards and farms because they've been doing it all their lives," said Flores. "We have apple producers, peach producers, grape producers, even cattle producers getting into the agricultural sector."

The biggest challenge Latinos in agriculture face, Flores said, "is that they were farm workers and now they are becoming farm owners, and it's hard for them because now they have to make all the decisions. Everything was decided for them, because they were working for somebody else. Now, as farm owners, they have to make decisions as to what to grow, what pesticides to apply and when. But with these technical aspects, there is no problem. The problem comes with financial management."

And that's where Flores is concentrating his outreach efforts. Translating instructional materials into Spanish allows Flores to deliver business planning and management courses in the new farm owners' native language. "If we can get them doing good planning, good management, good bookkeeping, they can make it."

Hilario Alvarez, who grows hundreds of varieties of peppers, tomatoes, potatoes, zucchini, corn, eggplant, and other vegetables on his all-organic, 70-acre farm, said, "Malaquias helped my farm grow. He helped me find the programs that would lend me money to expand my farm. Malaquias and the Small Farms Team also helped me market my produce through the farmers' markets all over Washington."

Another example is Pedro Calderon Hernandez, who works as the cattle health manager at Veiga Dairy in Sunnyside. Calderon grew up on a four-acre farm in Colombia and has worked on farms since he was a small boy.

"There were no options for me after elementary school, so I worked with my parents, but it was always on my mind that I wanted to do something else," he said.

Calderon got his opportunity when his uncle discovered a foundation that would allow him to pursue a college education. The foundation was set up by Father Jim Mitchell, a Catholic priest from the U. S., who also got Calderon a scholarship enabling him to attend WSU's intensive language center. He came to WSU in 1999 to study English and graduated in 2005 with degrees in animal science and agricultural economics.

"Why do you need a degree in economics to take care of cows? You need to know whether it's worth keeping a cow or sending it to beef. This is a business," he said. "Day in and day out, I'm applying economics, calculating time, training, feed costs, all of it."

Making sure that Latinos get the information and opportunities they need in order to do well in agriculture is critical if new farmers are going to be successful. Fortunately, it's possible to get a degree from WSU without ever coming to Pullman.

Francisco Sarmiento took advantage of WSU's North Central Washington Learning Center at Wenatchee Valley College to earn his Bachelor's degree in horticulture. Sarmiento came from Michoacan, Mexico, in the 1980s to "chase the American dream."

"While enrolled in the Hispanic Orchard Employee Education certificate program at Wenatchee Valley College, I realized that education is, indeed, the key to success," he said.

One of Flores' jobs is to make sure new farmers get the information they need. He offers workshops all over Washington to help people grapple with issues farmers face today, including increasing production and energy costs and managing the direct marketing of their products.

"I hope I can help Latinos to keep farming and it's my job to get them the information they need to be successful," he said.

(continued from p. 22)
in plants. With that in hand, breeding for specific characteristics, such as better nutrition or stronger disease resistance, changes from shotgun blasting to target shooting.

"There has been an explosion of genetic information on which breeders can make decisions, with which growers can identify disease," said Ralph Cavalieri, associate dean and director of WSU's Agricultural Research Center. "Information is power; it makes things happen much more quickly."

Professor Mike Kahn, assistant director of the ARC, agreed.

"The stuff you would only find in IBC (WSU's Institute of Biological Chemistry), you're now finding in test kits used by field managers in the state," he said.

Kahn emphasized that plants bred based on genomics information are not necessarily GMOs, the genetically modified organisms that have sparked heated debate throughout the United States and beyond.

"These are not GMOs," he said. "They are traditionally bred plants, but the breeding process is much more precise because of the genetic information available."

Cavalieri agreed. "Traditional wheat varieties took between 10 and 15 years from the time you made the first cross to the time it was field ready," he said. "Now we are cutting that time by a half or a third, and growers are getting new varieties much faster.

"We can use molecular techniques," he added, "to see what characteristics a tree would have long

(continued on page 33)

Urban Immigrant Farmers

BY **DENNY FLEENOR**, MARKETING AND NEWS SERVICES

WSU King County Extension Community Gardening Specialist Yao Fou Chao says that the P-Patch gardeners with whom he works, mostly immigrant families, garden to feed their families.

"They grow for food, not for therapy or for fun," Chao said. "Generally, the food they grow is needed to help the family, so it's very important. As low income people, they eat what they grow, they feel good about it, and the food is yummy."

Chao works with some 300 immigrant gardeners in the inner city with diverse backgrounds including Laotian, Mien, Vietnamese, Russian, and Latino. While many farmed in their native countries, Chou teaches them about soil fertilization, crop rotation, organic practices, and growing in the area's cool maritime climate.

Outside the city in rural King County, WSU King County Extension's Bee Cha works with Hmong refugees from Southeast Asia to help them establish and maintain successful vegetable and flower farms.

Cha estimates there are about 240 Hmong farmers operating 60 farm businesses in the county, and many of them sell at local farmers' markets and at Seattle's venerable Pike Place Market.

"At the Pike Place Farmers' Market the only local farmers selling there on a regular, year-round basis any more are the Hmong farmers," Cha said.

WSU King County Extension's Yao Fou Chao says the immigrant families with whom he works at this central Seattle P-Patch community garden rely on the food they produce to feed their families. Photo by Denny Fleenor.

Keeping It Local

BY **DESIREE KILIZ**
AND **DENNY FLEENOR**
MARKETING AND NEWS SERVICES

Dig in the City

A few years ago Washington State's Speaker of the House Frank Chopp was quoted as saying, "There are no farms in my district."

Chopp, whose urban district encompasses much of north and central Seattle, was technically correct, but that doesn't mean his constituents don't grow a significant amount of food.

Seattle Tilth, a nonprofit organization that promotes urban gardening, has its headquarters, demonstration garden, and community garden in the heart of his district. Each spring, up to 10,000 people flock to the two-day Seattle Tilth Edible Plant Sale, perhaps the largest in the Northwest, to stock their gardens.

In the early 1970s, during the so-called Boeing recession that left many jobless, the City of Seattle launched its P-Patch program, making plots of otherwise unused land available for urban families to grow food to supplement their diets.

Today the city's P-Patch program boasts 2,500 garden plots on 23 acres spread across 55 locations throughout the city. The 6,000 gardeners who tend the free plots not only produce food for their families but also donate up to 10 tons of produce annually to local food banks.

Rurally Speaking

But urbanites are not the only ones thinking and growing locally. In eastern Washington's Pullman-Moscow corridor—not exactly a thriving metropolis but home to two major universities—community members are working together to grow their own food or establish relationships with local producers.

City or country, this is nothing new. Small-scale, highly diversified gardening and farming is what humans did before the advent of energy-intensive transportation made agribusiness viable. Now community-based agriculture is experiencing a renaissance as consumers bring new awareness of food provenance, carbon footprint, and quality to their purchasing decisions.

"We got away from growing locally, and there has been a move back to getting fruits and vegetables from local growers," said Amy Grey, executive director of Backyard Harvest in Moscow, Idaho. "People are wanting to know who their farmers are and where their food is coming from."

One of the most popular movements in what has been called the New Agrarianism is the CSA, or community-supported agricultural. A CSA system allows individuals or families to purchase a share of what the farmer grows at the beginning of the growing season. In return, CSA members receive locally grown, farm-fresh produce on a regular basis throughout the growing season.

"We've seen an increasing number of CSAs in and around the Pullman and Moscow communities," said Brad Jaekel, manager of WSU's organic farm. "There are also approximately 1,500 CSAs around the country; this has greatly increased in the last five years. Farmers gain a foothold economically because they receive a bulk of their income at the beginning of the season. This provides start-

Up to 10,000 people visited Seattle Tilth's two-day plant sale this spring in North Central Seattle to stock their gardens (left). The growing number of farmers markets in urban communities are bringing more fresh local produce to consumers while providing small-scale farmers with new markets and better prices (right). Photos by Denny Fleenor.

Local Food Policy

The interest in locally produced foods isn't just the latest food fad in Seattle, it's now a matter of public policy.

In April, the Seattle City Council passed the Local Food Action Initiative, a resolution outlining steps to coordinate the various elements of food production and distribution within the city. Among its goals are to improve access and demand for fresh and healthier foods, reducing hunger and waste. The next step will be formation of a city Food Policy Council to recommend a plan for coordinating the city's food systems.

The initiative's chief advocate, Seattle City Council President Richard Conlin, told *Connections* that he saw that various elements of the city's food system need better coordination.

"I see it as an action plan, an opportunity to bring things together," Conlin said. "It's an opportunity to make connections between rural and urban, those that address hunger and the community gardens and P-Patches, local farms, and farmers' markets."

Conlin said that emergency preparedness is an important goal in establishing a local food policy.

"Look what happened in New Orleans with Katrina and food shortages," he said. "We need to know where food sources are if there's a disaster and have a plan to get them where they're needed."

The effort will provide better coordination and structure of the food system at the level closest to the consumer, according to WSU King County Extension's Sylvia Kantor who was instrumental in advocating for the initiative.

"We currently have departments of agriculture at the federal, state, and county levels but no policy or coordination at the local level," she said. "This will provide us with a perspective on the city's entire food system."

up costs and provides farmers with an economic safety net."

Grey added, "People eating locally is an important issue, especially when you are offering people who may not have access to fresh fruits and veggies the opportunity to get them."

Others are involved in community gardening projects. These projects allow community members to come together to grow fruits, vegetables, and flowers for themselves, their families, to sell at farmer's markets, or to donate.

Judy Herdering, a 10-year community garden plot owner at Koppel Farms in Pullman said, "The landscape of our yard prevents my husband Karl and I from growing vegetables, and that's why we joined the garden. We like to grow things, and it makes it worthwhile for us to do it in a community setting."

Tim Paulitz, a plot coordinator from Pullman Community Garden and a U.S. Department of Agriculture research plant pathologist at WSU, explains how the community is affected by the return to traditional agriculture. "The community garden at Koppel Farms has really become a community resource, especially for the area's non-profits, as well as for the student population, gardeners, and people who just enjoy it."

Local Environment Benefits

People are not the only beneficiaries of community agriculture. The surrounding environment and natural wildlife are also impacted by using labor-intensive, small-scale agricultural practices.

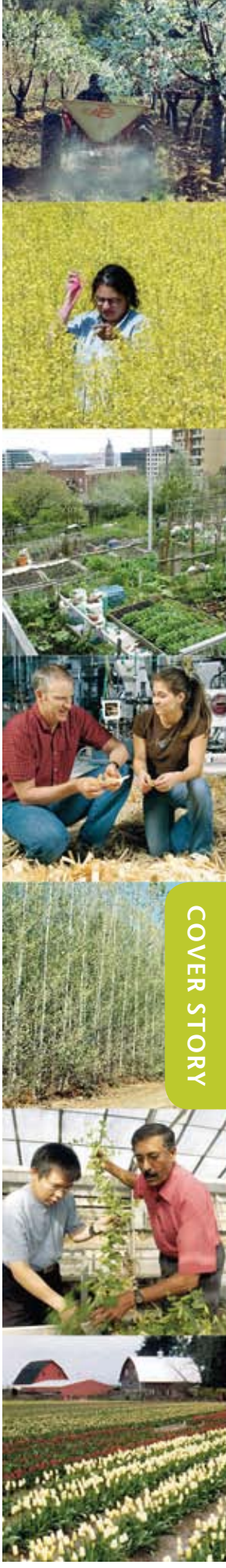
"Community gardening as an alternative to large-scale agriculture benefits the community because it provides a green space for wildlife that live in a riparian greenbelt the opportunity to roam in their environment," said Paulitz. Riparian zones, the interfaces between land and flowing water, are especially sensitive to damage from construction and agricultural runoff.

"I don't think a lot of people realize the problems with nitrates and nitrites from agriculture and how it gets into the water and pollutes it, and how destroying the environment turns around and hurts people by causing disease," said Wendy Fletcher, a soil science student at WSU.

Community agriculture has its critics but supporters of CSAs, community gardens, and organic production believe trends are shifting. Certainly, more people are participating in growing, eating, and supporting local agriculture.

"As people become more aware of the consequences and impacts that large scale agriculture has on the environment, they will find more alternatives to it, and participation in CSAs and local farming will increase," said Will Hollingbery, a student in WSU's organic agriculture program.

"I think that as the economy worsens and gas prices soar, we will see more people having their own gardens and growing their foods, locally and organically," said Tammy Parker, a WSU landscape architecture graduate student. "And the more people know, the more they will see the connection between how healthy your food is, how healthy you are, and how healthy the world is."



The Farm of the Future: A Mosaic of Diversity

BY **BRIAN CLARK**, MARKETING AND NEWS SERVICES

WILL THE FARM OF THE FUTURE be larger than today's farm or smaller? Single crop or diversified? Organic or conventional? Family-owned or corporately owned?

The answer to all those questions could be "yes" but, as physicist Niels Bohr once said, "Prediction is very difficult, especially about the future." The future of farming is a hot topic, one of serious concern to farmers as well as everyone who eats.

Connections asked a group of experts to speculate about where the American farm is headed. And as Dan Bernardo, dean of WSU's College of Agricultural, Human, and Natural Resource Sciences, recently told the *Seattle Post-Intelligencer*, "It may be easier to predict where we'll be in 20 years than in one."

One of the greatest concerns in recent years is the decline of the family farm. The U.S. is historically an agrarian society, but the number of farms has dwindled while farm size has swelled in the past century. As agribusinesses has driven a "green revolution" that fed millions who might otherwise have gone hungry, the American psyche has suffered as mom and pop have sold their land and their kids have moved to the city.

But the times are changing, and many observers of the global food system—the network of farmers, fields, and related industries that puts food on our tables—see an agrarian renaissance in the making.

"It's not about big versus small anymore," said John Gardner, WSU's vice president of economic development and Extension. "Individual agricultural operations will be differentiated according to place, market niche, and individual interests. From an era of Wonder Bread to, well—look at the bread aisle now!"

Like the markets for bread, apples, potatoes, and other commodities—which consumers have changed with demands for variety, nutrition, and sustainability—so too the farms of the future are likely to look less like they are cut from the same cloth and more like a mosaic.

Gardner said the farm of the future will be "site specific." Small or large, growing a single crop or a diversified array, farmers will tailor operations to grow in concert with local resources. Part of the reason for this is growing consumer concern about the social and environmental costs of their choices, which is driving change across entire industries.

"What we're seeing," said David Granatstein, a WSU Extension educator and Climate Friendly Farming project leader, "are behaviors changing. People are talking about energy; they're changing their habits, taking fewer trips, changing cars."

And change is happening quickly in Granatstein's view. With rising food and energy prices, the miles we travel to work or play and the miles our food travels are of great concern. "The food and fuel thing happened in one year—people weren't expecting that, and it's changing the way we do things."

The sudden uptick in concern about the intertwined system of food and energy is captured by the Oxford American Dictionary's choice of "locavore" as its 2007 word of the year.

A "locavore" is someone who consumes food produced locally, on the assumption that the fewer miles food travels the more sustainable it is in terms of carbon footprint. Not so, said Granatstein, who argues that we need to conduct "life-cycle assessments" for agricultural products, as mileage alone does not capture the full impact of food's footprint. To the "food miles" calculus must be added all the other costs of production.

"Some of this calls for getting people to change their diets and expectations—not having tomatoes available year-round is something we need to be alert to," said Mike Kahn, associate director of WSU's Agricultural Research Center.

While this is likely true, Granatstein is quick to point out that "our long-distance shipping is generally quite efficient relative to a bunch of people driving pickup trucks to sell at a farmers market."

The Triple Bottom Line

The global food and energy system needs to "reconcile the books," according to Gardner. He sketches the concept of a "triple bottom line." Old-school economics, he explained, just followed the money, leaving aside the social and environmental costs of doing business as intangible. In order to balance the books, Gardner insists that tomorrow's economist will have to include those intangible costs when calculating profit. "Otherwise," he said, "it's not fair to the farmer or the consumer.

"If we can successfully reinvent ourselves, the American rural landscape needs to have a longer-term vision. This will require ongoing adjustment. We'll have a covenant, and then the power of the entrepreneur can kick in. We need to free up

the entrepreneurs from regulation but we have to have the triple bottom line in place.

"One of the big issues happening now is that we're in the midst of coming to terms with food and natural resource products that we have not been paying the whole price for," Gardner continued. "We're seeing food riots in Haiti, but also rice and flour rationing at Wal-Mart, Costco, and so on. Some of this is knee-jerk reaction, simply because we don't know where the reconciliation will end up." Some will resist the process of reconciliation, but it must happen in order to provide a hungry world with a safe and abundant food supply, he added.

"A while ago," said Ralph Cavalieri, associate dean and director of the Agricultural Research Center, "we were pretty smug that we'd solved the problem of world hunger with the green revolution, but the more critters you have to feed, the more food you need. And, the land mass on which to grow that food is not increasing."

"In fact," added Kahn, "the land devoted to agriculture is decreasing around the globe." And, he said, "Nobody would argue that current agricultural practices are sustainable right now. There are going to be shifts in production systems."

Eyes Per Acre

Gardner sees opportunity in the evolution of the American farm. "We've shaken people out of ag in the past era. If you look at the whole supply chain of food, ag probably employs 30 percent of Americans. But we've run people out of the starting point; only about 1 percent of Americans work in production agriculture. The supply chain will probably reshuffle and, to use a term from Wes Jackson at the Land Institute, the 'eyes-to-acres' ratio will probably go up. We need more people on the land. We're entering an era where there are going to be lots of opportunities for people to get in early in the supply chain."

WSU alum Travis Allan, general manager of Allan Brothers Fruit in Naches, Wash., agrees. "I see a huge demand for competent, intelligent people to come into the industry," he said. "One of the most important things we'll do over the next decade is recruit talented, energetic young people to farming."

Granatstein said more and more people are interested in learning to garden or farm on a small scale. He sees people educating themselves through Cultivating Success, WSU Extension's sustainable small farm course. "The sense among people is that if they know how to grow their own food, they'll be protected against rising prices and safety concerns about safety," he said. In other words, they'll have a buffer against change and a sense of security knowing where their food comes from.

> *"The land devoted to agriculture is decreasing around the globe."*

Pedro Calderon Hernandez, '05, witnesses these concerns from his vantage point as animal health manager at Viega Dairy in Sunnyside. "It's important to keep our animals healthy because that keeps the product healthy and that benefits the people who drink the milk," he said. "Everything starts here, and when it goes to the city, people don't know where their milk comes from, but they're very concerned about safe food."

For Allan, being close to the source is the reason he followed his family into the orchard industry. "I produce an eating experience, something people enjoy and get pleasure from," he said. "And that's the best."

Even as the mosaic of agrarian diversity increases the eyes-per-acre ratio, the billions of hungry people on the planet require systems of highly efficient mass production in order to stay fed.

"Larger scale ag will continue to provide most of our food," Granatstein observed, "but energy is the wild card here. Agribusinesses will be challenged with producing energy locally, on-farm, so part of a farm may be dedicated to growing fuel stock. They'll have to internalize that cost in some way. We simply won't be able to tolerate waste, and anyway, most waste has some potential value. So we either reuse or simply don't produce waste."

Wasting not so we want not requires applied problem-solving, a key skill students acquire with a WSU education. Applied problem solving is also one of the core missions of Extension, the nation-wide system that focuses on applying the power of science to current problems as well as issues still on the horizon.

"The notion of an educated populace dealing with knowledge that has a rapidly contracting half-life speaks to the land-grant mission as first devised," said Gardner. "We need to expand our educational mission to embrace the entire society and that speaks to the founding mission of Extension."

Granatstein, himself an Extension educator, agreed. "Just as every student has to take freshman English, every student should have to take freshman Sustainability."

Planting the Seeds of Community Service:

Clark County 4-H and Juvenile Justice Partner to Change Young Lives

BY **KATIE FLOYD**
MARKETING AND NEWS SERVICES INTERN

COVER STORY

Young people work together for both hands-on teamwork experience and to change the directions of their lives. Here, kids are digging trenches for an automatic watering system.

A shared vision, a remarkable partnership, and a model for juvenile justice systems across the nation: that was the result of a meeting eight years ago between a 4-H educator and a Clark County Juvenile Justice administrator.

When WSU Clark County Extension 4-H Youth Development educator Carol DeHaas first spoke with Ernie Veach-White, the Clark County Juvenile Justice administrator, they discovered they had something in common—a shared vision of young people learning life skills and citizenship through hands-on projects guided by adult volunteers.

The result of that initial meeting was an organic garden in which youthful offenders perform community service. Originally named the Juvenile Justice Garden, the name has been changed to the 4-H Restorative Community Service (RCS) Food Bank Garden in order to better reflect the partnership between 4-H and Clark County Juvenile Justice.

"Youth are encouraged to see community service as a personal obligation instead of a punishment. They often don't see the connection between being held accountable and traditional community service projects performed on work crews," said Karen Poulin, a psychologist who specializes in 4-H youth development. The garden project enables young people to do work valued by the community, she said.

Jodee Nickel, WSU Clark County Extension Food $ense and 4-H Youth Development program coordinator and site lead for the garden, said the project is more than just fulfilling community service hours.

"Working in the garden provides more of a transition and a way to earn respect by working with community members," Nickel said.

The Center for Agriculture, Science and Environmental Education (CASEE) donated the garden's large plot of Brush Prairie land (located on Battleground School District property), as well as equipment and meeting space. Local community vendors provide additional supplies throughout the growing season.

One day a week, the youth and volunteers meet in a circle at CASEE, introduce themselves, talk about guidelines, and walk to the garden to work together. Two breaks throughout the four-hour session provide time to snack on whatever is growing in the garden. At the end of each session, youth and adult volunteers gather to discuss what they've accomplished and learned. Their reflections become part of a weekly garden journal.

Nickel keeps a journal to document participant experiences and the garden's progress. She outlines what she and other volunteers have been teaching and growing to make connec-

tions between the farming processes, gardening experiences, nutrition, and positive youth development.

"Debriefing is critical to solidifying the kids' learning," Poulin said. "The kids are making a difference in the community and guided reflections make that clear to them, along with helping them connect their work to accountability.

"As with many counties," Poulin said, "Clark County has a commitment to reducing obesity in our population. With that in mind, this garden donates fresh, organic produce to a local food bank that is used for resource-challenged families." The food bank serves approximately 400 families per month, and garden produce "flies off the shelf," Poulin said.

2007 saw the garden's largest participation to date. More than 100 young people and nearly 40 adult volunteer mentors produced and donated 2,216 pounds of organic fruits and vegetables.

Nickel said garden coordinators plan to work more with the local food bank to grow more shelf-sustainable food that community members like and know how to use. The local food bank currently reserves a shelf and request sheet specifically for the garden's annually increasing donations.

The qualitative data collected from sources like Nickel's journals indicate impact in all of the major 4-H life skill categories, Poulin said. As with all 4-H youth development programs, the project's overall goal, she said, is to build the youth's sense of independence, mastery, generosity, and belonging, all of which are needed to be successful adults.

"In addition to its commitment to accountability and community safety, the garden project focuses on the development of the whole person. In 4-H, there is an emphasis on a positive relationship between youth and adult," Poulin explained.

Nickel said that while not all youth offenders will become farmers when they finish their community service hours, she anticipates some of them will be life-long garden growers and vegetable eaters.

Ned McConnelly has volunteered in the 4-H RCS garden for the past three years. In his three summers as a volunteer, McConnelly said his role as a mentor is simply to help create a positive experience for the kids.

Poulin and Nickel concurred that the program gives community members an opportunity to reconsider the way they see youthful offenders.

"You can see the kids kind of opening up," McConnelly said. "They find out there are adults out there taking them for who they are."

(continued from p. 27)

before it would bear any fruit, then screen out those without the genes we're after and focus on those that do."

That saves enormous amounts of time in the breeding process, Kahn said, and time is money.

"Practical application of this science allows us to do things much more quickly, increasing nutrition and yields with much more predictability," he said.

More detailed genetic information also allows the industry to respond more quickly to disease outbreaks, Kahn and Cavalieri said. Instead of waiting several seasons to adjust a variety by traditional means, plant breeders armed with a better understanding of the genetic make-up of the plant can make changes for the very next growing season.

Another technological advancement that already is making a difference in the competitiveness and environmental sustainability for Washington farmers is precision agriculture.

"Instead of farming an entire field the same way, you can now farm part of a field," Kahn said.

Aided by high-tech tools like WSU's Web-based AgWeatherNet and DecisionAid systems, growers can apply fertilizers and other ag chemicals specifically when and where they will do the most good. "It's a matter of putting the right input at the right place in the field at the right time," Kahn said. And, that, he added, saves money and limits environmental impact.

Yates agreed. "I truly believe that—not in my lifetime or my children's lifetime, but in their children's lifetime—we will have farms operated with farmers sitting at their computers operating their combines and sprayers without anyone in them."

Science and technology also may help address one of the most pressing challenges for growers today—labor shortages.

WSU scientists and Extension educators already are working on things like mechanized asparagus harvesters and robotic pesticide applicators for orchards that could help fill the labor gap. Tools of the future—including plants and trees bred to ease use of technology—could minimize environmental impacts and maximize product quantity, quality, and profits. And that means sustainability, even in light of significant population growth.

Whatever the future holds, partnership between the agricultural enterprise—farmers, processors, and consumers—and their land-grant institution will be as important as it has been for the past 150 years. The difference will be a sense of urgency and the willingness to explore the unknown and adopt the emerging.

"By virtue of our legacy and our status (as the state's land-grant institution), we have a big role to play in all this," Gardner said. "We need to take some risks, calculated and disclosed risks, to meet these urgent needs. The teaching, research, and extension missions of WSU are still relevant, but they have to meet the needs of the times."

WSU Undergrads Team Up for High-impact Genomics Research

BY **BRIAN CLARK**, MARKETING AND NEWS SERVICES

WASHINGTON STATE UNIVERSITY'S vibrant undergraduate research community is 14 researchers richer thanks to funding provided by the College of Agricultural, Human, and Natural Resource Sciences Office of Academic Programs and Agricultural Research Center.

Amit Dhingra

In all, 13 research proposals have been funded, including five undergraduate genomics projects. All five genomics projects show promise of having a direct, positive impact on Washington's multi-billion-dollar horticulture industry.

Six students, all advisees of Assistant Professor Amit Dhingra, are conducting the genomics research.

"All these projects build on existing knowledge," said Dhingra. "What's new here is the tools we're using and the way we're addressing problems by approaching them from the molecular level. These projects are practical applications of basic research." The research the students are conducting employs a technique Dhingra developed that speeds up, simplifies, and makes genomic analysis economically feasible.

"The spirit of peer learning is really the way to go," said Dhingra when asked why so many student researchers are under his advisorship. "Students inspire each other to push themselves. Plus, they see their fellow students having fun doing research, so they ask themselves, 'Why couldn't I do that?' As a facilitator and collaborator, I answer, 'You can do that!'"

"What Amit is doing here is really the model we want to ramp up college-wide," said Kim Kidwell, associate dean of academic programs. "This is world-class science that introduces young scientists to the thrill of discovery, contributes to the industry, and helps us build a home-grown graduate program."

Dhingra said he's inspired by inquiring minds and encourages undergraduates to contact him about genomics research opportunities.

Genomics is the study of an organism's entire genome, as well as the ways in which individual genes are expressed under a variety of conditions.

CAHNRS funded genomic projects

Control of Plant Growth Using Differing Light Regimes

Freshman engineering major Danielle Druffel will investigate using highly targeted frequencies of red, blue, and green light in order to determine which frequencies affect plant growth and the underlying plant hormone biosynthesis. Druffel is collaborating with David Kramer, a professor in WSU's Institute of Biological Chemistry.

Identification of Genomic Factors Underlying Differences in Morphology and Timing of Vitis Cultivars

Senior horticulture major Shane Moore brings the real-world concerns of wine grape growers into Dhingra's lab in order to discover why different grape varieties flower and ripen at different times.

Development of Fingerprinting Technology for Clonal Identification of Vitis Cultivars

Horticulture majors Dane Scarimbolo and Kathie Lee Nicholson aim to develop a technology to reliably identify wine grape cultivars using the genetic information carried on the maternal line in a plant's chloroplasts. Scarimbolo and Nicholson are collaborating with WSU viticulturist Markus Keller and scientific assistant Gary Ballard.

Chloroplast Genomics of World's Apple Germplasm for Development of Maternal Lineage

Horticulture major Crystal Wildenstein will chart the journey of Washington's No. 1 crop, the apple, from its origins in Kazakhstan to its modern place as one of the world's most popular tree fruits. By isolating and amplifying the genetic material in several different apple varieties, she hopes to establish a clear line of descent from the Kazakhstani mother tree to the modern apple.

Identifying the Genotypic Diversity of a Powdery Mildew Resistance Gene in Cherry

Microbiology major Fantahun Tedla is investigating the diversity of genetic expression of powdery mildew resistance in cherry. Tedla is collaborating with graduate student Derick Jiwan and Jim Olmstead, the manager of WSU's cherry breeding program, and grower Mark Roy of Moxee, Wash.

In Memoriam

Beloved farmer and friend of WSU dies

Robert J. Hulbert, '51

ROBERT J. HULBERT, alumnus of the Class of 1951 and long time friend of the College of Agricultural, Human, and Natural Resource Sciences, died Jan. 9, 2008.

Hulbert grew up on his family's dairy farm in La Conner, which later became a crop farm after he and his brother Jim took control of the operation.

He attended Washington State College, graduating with a degree in Agricultural Economics. As an active student, Hulbert was president of his fraternity, Phi Delta Theta, a member of the WSU Student Activities Board, and was chosen as Cadet Colonel of the Air Force ROTC. He was recognized as one of the outstanding seniors of the Class of 1951.

After graduation, Hulbert spent two years in the Air Force. He attended Georgetown University Air Force Intelligence School in Washington D.C., graduating with honors. He served in Asia for a year until the end of the Korean War, returning home to Skagit County in 1953.

That same year, he married Patricia (Schaar) Hulbert. Together they raised five children on their farm on Fir Island. All five graduated from WSU.

A high point in Hulbert's life was taking his kids to the 1998 Rose Bowl, which featured the Cougars versus the Michigan Wolverines.

Hulbert loved the agricultural way of life in the Skagit Valley, and actively worked for its preservation. Employing hundreds of young people in the valley, he believed in a strong work ethic, and that farmers could and should be excellent stewards of the environment.

He promoted the ideals of the land-grant university, and that the agricultural industry, researchers, and other community members should share ideas, information, and resources.

The Hulbert Agricultural Sciences building on the main WSU campus was named after Hulbert's father, a former WSU regent.

Alumni & Friends

Asa Clark—'41
Stanley Dodson—'40
Robert Hulbert—'51
Wayne Johnson—'39
Jeffrey Krautkraemer—'76
James Maguire—'52
Michael Moore
Lawrence Porter—'68
Eugene Prince—'52
John Schafer—'42
Melvin Sund—'66
Jay Swanson—'46 & '47

Faculty & Staff

Charles Nagel
Wallace Rehberg

Photo by Lagene Taylor

Ted Baseler

Baseler '76, awarded Alumni Achievement Award

TED BASELER, CEO of Chateau Ste. Michelle Winery, was presented with the Alumni Association's highest honor in January.

Baseler was recognized for his leadership and influence on the state, national, and global wine industry; his generous contributions of time and talent to WSU, and the profound impact he has had on the lives of deserving students across the region. The positive difference Baseler has made is evidenced by the educational opportunities that he's helped open up to the next generation of community and industry leaders.

Baseler's tireless efforts have boosted the region's economy and provided employment and business opportunities to thousands of people while elevating the stature of the Washington wine industry.

Rick Small and Darcey Fugman-Small

Small '69, awarded Alumni Achievement Award

RICK SMALL, co-owner of Woodward Canyon Winery with his wife Darcey Fugman-Small, was presented with the Alumni Association's highest honor, the Alumni Achievement Award, on Dec. 4, 2007.

Small was recognized for his profound impact on the Washington wine industry, his leadership role in helping the state to become known for producing world-class premium wines, and his richly deserved praise as a world-renowned grape grower and winemaker. Small's steadfast commitment to the work of grape growing and the art of winemaking has placed Woodward Canyon among the elite wineries in the world and contributed to positioning the Walla Walla Valley and the state of Washington among the most revered wine-producing areas in the world.

Small personifies WSU's land-grant mission of innovation, service, leadership, discovery, and impact by helping to elevate the status of WSU's viticulture and enology program. The example Small has set and the ideals he has embraced serve to inspire the next generation of great Washington state winemakers.

Rick Adams

CAHNRS alum is Dad of the Year

RICK ADAMS, a WSU alumnus and educator, was named WSU's Dad of the Year for 2007. His nomination was announced last fall during the Stanford/WSU football game, Nov. 10, at Martin Stadium.

Adams was an agricultural science teacher and FFA advisor at Prosser High School; he retired in June after 30 years of teaching. Prosser has one of the largest FFA programs in the state.

The Phi Kappa Sigma alum and 1975 WSU graduate was nominated by his son Ricky Adams.

"He taught me to love everything about the Crimson and Gray, such as shopping at the Bookie, ice cream at Ferdinand's, donuts from the now-closed Daylight Donuts, buying a car only if it was Cougar colors, and hating the Huskies… There was no question where I was going to school," said Ricky Adams.

Mathisons and Mracheks receive Alumni Achievement Awards

CREATED IN 1970, the Alumni Achievement Award is the WSU Alumni Association's highest honor. Of an estimated 250,000 total WSU graduates, only 469 have received this prestigious award.

The four most recent recipients are Michael ('74) and Laura Mrachek ('77) and Kyle ('76) and Janice Mathison ('79). Both couples were honored for their dedication to WSU and Washington's tree fruit industry.

The Mracheks were specifically recognized for community leadership and for bringing innovations to the tree fruit industry that will benefit future generations of fruit growers and managers across North America. The Mracheks were recently named the "Good Fruit Growers of the Year." As vineyard and winery owners they were also named the "Washington Winery to Watch."

The Mathisons were recognized for their contributions to the regional and global tree fruit industry, for environmental stewardship and resource conservation leadership, and their boundless devotion to both their community and their alma mater. The Mathisons, too, are recognized by their peers as innovative fruit growers on two continents whose contributions enhance lives, benefit the world, and improve productivity and sustainability.

L to R: Matt Eastman, Janice Mathison, Kyle Mathison, Laura (Laurent) Mrachek, Michael Mrachek, and Ford Barrett.

Home Ec alumna weaves a WSU legacy

THE ALUMNI ACHIEVEMENT AWARD was one more honor in a long list when Carole Cooke Jones ('55) received it in 1989, and the list didn't stop there.

Most notably, Jones has been recognized with the Golden Acorn Award from the Spokane PTA Council, an Outstanding Service Award (with her husband, Barry) from the WSU Foundation, as the Junior League of Spokane's "Outstanding Sustainer of the Year", and was chosen as WSU's "Mother of the Year" for '77–'78. She and Barry are Benefactors of the WSU Foundation.

Jones grew up in Spokane and attended Lewis and Clark High School. After graduating in 1951, she came to Washington State College. Jones has many fond memories of her college days, including sorority life, student leadership, Homecoming, and the walk to Moscow, Idaho, in 1954 after the Cougar's first football loss to the Vandals in 29 years.

Reluctant student became WSU Regent

ROBERT "MAC" CROW grew up on a wheat ranch near the small town of Oaksdale on a section of ground that his great grandfather homesteaded in 1880. He reluctantly enrolled in college after graduating from high school at age 16. "All I wanted to do was stay home and farm," he recalls. "I made an agreement with my folks that I would go to school for two years and then I could come home."

"I went one year to Whitworth College because at the time WSC looked too big," Crow said. "Then I decided I wanted an ag degree. I didn't want some other vocation. I transferred to Pullman as a sophomore."

He succumbed to the call of the farm during the second semester of his junior year. "I quit school. The road was blocked between Palouse and Pullman with snow so I jumped on the train and went home. Dad put me to work the next day."

That spring, a 70-year-old man in town offered to rent him 400 acres. "It was almost a fairy tale story because here I was 19 years-old with no backing other than my dad."

One of the provisions of the lease was that he complete his education. He returned to WSC in the fall, attending classes during the week and spending weekends at the ranch. Crow graduated with a B.S. in Agriculture in 1951.

His connection to his alma mater has never been broken. He sent three children to WSU. He has been active in the Cougar Club as well as a member of the alumni association. He served on the WSU Board of Regents from 1985–97 and was president in 1988.

Crow was honored with the Alumni Association's highest honor, the Alumni Achievement Award, in 1999.

Visit our Alumni and Friends Web site to catch up with more of your fellow CAHNRS Cougs. On our site you'll find additional videos, photos, and stories. Visit www.cahnrsalumni.wsu.edu.

Women's History Recognition:

Three women make outstanding contributions

BY **DESIREE KILIZ**, MARKETING AND NEWS SERVICES INTERN

Jill Findeis, Sarah Lewis, and Jacie Jensen were honored by CAHNRS for their professional achievements, community leadership, and drive.

FOR WOMEN'S HISTORY MONTH, three outstanding women received awards from the WSU College of Agricultural, Human, and Natural Resource Sciences for their professional achievements, community leadership, and drive.

Jill L. Findeis (Agricultural Economics, Ph.D., '82) earned the 2008 Professional and Academic Recognition Award for her excellence in teaching, research, and leadership.

Jacie Jensen, (Child and Family Studies, M.S., '83), received the Community Leadership and Public Service award for her countless projects for restoration and elderly care around the Palouse.

Sarah A. Lewis, (Biological Systems Engineering, B.S. '99, M.S. '03), received the Rising Star award for her achievements in forestry research and professional publications.

"I'm especially proud to honor these women for the work they've done and the achievements they've made. They've all done a phenomenal job to advance their fields of study, and these awards are meant to signify the achievements they've made and will make in the future," said Dan Bernardo, CAHNRS dean.

Findeis, Jensen, and Lewis received the awards based on their nominations from faculty members at WSU and their impressive academic and professional resumes.

"Jill Findeis has achieved international distinction for her research in the field of international economic development. She's an award-winning teacher, researcher, and graduate advisor. She is a leading woman in a highly male field. She makes a difference with her impactful research and her influence on students, colleagues, and all who come in contact with her," said Ron Mittelhammer, Regents Professor and director of the School of Economic Sciences.

"Jacie Jensen is an enormous resource to her community, her county, and state, and we are proud of her accomplishments," said nominators Joye Dillman and Alberta Hill. "She chose a path-breaking topic for her graduate education, helped others utilize technologies, and evolved her work as she saw additional needs."

"There are not so many women in engineering and there are often even less women in forestry engineering, but Sarah Lewis is an inspiration through all of her accomplishments, and I have so much admiration for her," said Joan Wu, associate professor of biological systems engineering.

CAHNRS Women's History Recognition Award Nominations

The CAHNRS Women's History Committee is seeking your help in identifying graduate women for two annual awards based on outstanding contributions in the following areas:

1. **Community Leadership & Public Service**
   For those who have distinguished themselves in their community (local, regional, national, or international) through leadership, public service, or any combination of these activities.
2. **Professional & Academic Leadership**
   For those who have distinguished themselves in their profession through career contributions, research and development, publication, or any combination of these activities.

Please consider nominating graduates who would make good candidates for these awards during the 2008–09 academic year.

Forms can be found online at **www.cahnrsalumni.wsu.edu/events**. We look forward to your nominations of our outstanding graduates.

Golden Grads

Front Row, L to R:
Audrey (Lane) Carey,
Jean (Rickard) Berney,
Anna (Ajirogi) Yee,
Arlene (Prince) Beale,
Sonya (Huang) Lee,
Carole (Hadley) Rice,
Janet (Hanson) Anderson,
Don Schilling

Middle Row, L to R:
Janet Nadine (Bowler) Scott,
Marilyn (Sweeney) Enderson,
Anita (Delaurenti) Dull,
Ione (West) Perry,
Barbara (Maresh) Sparling,
Margaret (Raupp) Habersetzer

Back Row, L to R:
Carol (Sheffels) Quigg,
Bob Wynecoop,
Allan Koch, Bill Stuart, Dick Woods, Norm Scott, and Frederic Blauert

Diamond Grads

Back Row, L to R
Lil (Plowman) Freese,
John Sargent,
Walter Rohd,
Leslie Metzger,
Bob Olson

Front Row, L to R
Marge (Mchugo) Sargent,
Esther (Johnson) McDonald,
Dale Bly,
Allan Barger

THE COLLEGE OF AGRICULTURAL, HUMAN, AND NATURAL RESOURCE SCIENCES

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Bear Research and Conservation Endowment Fund

IN THE U.S., grizzlies outside of Alaska have been eliminated from 99 percent of their range, while their numbers have been reduced from 100,000 to fewer than 1,000. WSU established the Bear Program as the only facility in the world to house adult grizzlies for research, education, and conservation.

As bear populations around the world continue to decline through climate change and environmental encroachment, support of conservation science becomes imperative. Just as important, though, is the importance of bear research to contribute to our understanding of human health and to contribute to applied medical science.

Because normal bear physiology mimics certain life-threatening conditions in humans, the study, for instance, of how a bear's heart shuts down for hibernation but then kicks into full gear in the spring without a hitch, contributes to our understanding of human heart function.

And because 60 percent of human diseases are transmitted through animals, bear research contributes to our understanding of animal health on a global scale.

By contributing to the Bear Research and Conservation Endowment Fund, you're giving today to the well being of tomorrow.

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Jim and Barb Quann Endowed Scholarship

JIM AND BARB are 1954 graduates from WSU. Barb earned her degree in business, while Jim earned a B.S. in animal sciences, and then went on to earn a Master's in agricultural economics ('59) and a doctorate in education ('71). Together, they've endowed a scholarship fund which will provide low-income students with opportunities to study in any area of agriculture or home economics.

Jim served higher education for more than 43 years, with faculty and administrative positions at four universities in three states. At WSU, he served for more that 25 years as registrar, and now holds the title Registrar Emeritus. Jim retired in 1996. He founded the WSU Veterans Memorial, which was completed in 2000, and spearheaded the design, financing, and construction of the St. Thomas More chapel and religious center near the WSU campus.

Barb was a stay-at-home mother until her children were grown, when she went to work for WSU. Over the years, she served in several departments and as the president of the WSU Faculty Women's Club and other volunteer positions. She and Jim have three grown children, all Cougs, and six grandchildren.

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Ruth Schneiter Henderson Endowments

A QUIET PHILANTHROPIST, Ruth Schneiter Henderson's gifts enrich the future of American dairying in a multitude of ways. By creating endowments in support of 4-H, Ruth gives young people the gift of direct experience with agriculture and democracy. Her support of young people is paired with an endowment that funds scholarships for WSU students studying dairy science.

Ruth grew up on a dairy farm in Longview, Wash. Her parents were dairy farmers of Swiss heritage, who loved the land, their animals, and hard work. Ruth's parents, Robert and Margaret Schneiter worked together for nearly 50 years, building a thriving herd of registered Holsteins on their growing farm.

As her own children grew up, Ruth volunteered with the organizations in which twins Margaret and Robert were involved. In Ruth's estimation, the organization with the greatest impact on her children's lives was 4-H. Ruth served 4-H generously, as a camp counselor, county fair organizer, county council chairwoman, and a leader in the foods program.

Volunteerism, community organization, and philanthropy have been touchstones in Ruth's life, as exemplified by her work in the arts and the hospice movement. And although she thought she'd always live in southwestern Washington, her love of Montana lured her to move to Big Sky country where, she says, she's returned to her roots, as agriculture is "the essence of life" in central Montana.

Harold Nyberg Endowed Scholarship in Forestry

THE SON of first generation Swedish-Americans, Harold Nyberg, grew up in Hoquiam, Wash. One of five children, Harold was the only one to attend college. He paid his way through college by working, and majored in Forestry at Washington State College. Harold dedicated his career to the Forest Service, serving as a forest ranger in various districts of Washington and Oregon, retiring in 1969. Harold Nyberg's endowment will help insure access to forest management and ecology education for students with financial need.

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Heinemann Endowment Bolsters Funding at Lind Research Station

FUNDING FOR OPERATIONS at WSU's Lind Dryland Research Station will receive a significant boost thanks to a gift from a leader in Washington State's horse racing industry, Edward Heinemann.

Heinemann was honored at this summer's Lind Field Day for creating the Edward and Arlene Heinemann Lind Dryland Research Endowment. Upon his passing, proceeds from the sale of his Olympia home on the Puget Sound will go to the Lind Station as well as to the Edward and Arlene Heinemann Animal Sciences Endowment.

"This is a significant contribution for the betterment of this station, and we very much appreciate it," said Bill Schillinger, director of the Lind Dryland Research Station.

Dan Bernardo, dean of the WSU College of Agricultural, Human, and Natural Resource Sciences, also thanked Heinemann, calling him "a huge Cougar fan."

Heinemann, who served as field secretary to the Washington Horse Breeder's Association for 28 years and as director of the Washington Horse Racing Commission, said he is "very grateful for my education at WSU."

He met his wife Arlene while attending WSU. After earning his degree in Animal Science in 1939, they were married in 1941. He worked as the extension agent in Lincoln County where he coordinated 4-H programs.

Heinemann has been an active alumnus of WSU. He served as president of the Seattle Cougar Club, vice president of the WSU Alumni Board and president of the Lariat Club, which is now known as Block and Bridle. Lending his horsemanship expertise, he also was instrumental in the successful establishment of the Hilltop Stables in Pullman. He is the founding member of the Howard Hackedom Scholarship which supports students in Animal Sciences.

More information about Mr. Heinemann is available at http://wsm.wsu.edu/.

McNeal Family Scholarship in Horticulture

DESIGNED FOR STUDENTS pursuing a degree in horticulture at WSU and focusing on tree fruit management, this scholarship will help insure the excellence and leadership of Washington in the global tree fruit marketplace. It was established by the Betty and C.F. McNeal (electrical engineering, '47) family in recognition of the long career in the tree fruit industry they enjoyed in Wenatchee.

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