

College of Agricultural Sciences

Oregon State University

August 2008

Introduction

This report to the provost from the College of Agricultural Sciences makes no attempt to provide *comprehensive* documentation of the many activities and accomplishments of our faculty, staff, and students. Instead, in each of the categories specified by the provost, it offers examples of the kinds of work going on and the consequences for students, stakeholders, Oregon residents, and others. Because so much of the College's work is long-term, any report like this is necessarily a snapshot at a point in time. Some programs we report here were part of last year's report and may well be a part of next year's as well.

Dean retires, interim dean assumes leadership

Surrounded by colleagues, family and friends, Thayne Dutson, the College's long-time dean, retired on June 30, 2008. He continues to serve the University as he and Bill Boggess, interim dean, transition leadership of the University's largest college. Dutson continues as director of Sun Grant Western Region. Candidates for the Sun Grant position interviewed in July, 2008.

New unit leaders

The College of Agricultural Sciences benefits from the skills and input of three newly-hired unit leaders:

- **Susan Capalbo**, department head, Agricultural and Resource Economics, formerly of Montana State University.
- **Craig Marcus**, department head, Environmental and Molecular Toxicology, formerly of the University of New Mexico.
- **Peter Shearer**, superintendent, Mid-Columbia Agricultural Research and Extension Center, formerly of Rutgers University. Shearer will assume his post in August 2008.

2007-2008 highlights

Programmatic achievements

Embracing multiple approaches to student engagement and success

The College of Agricultural Sciences embraces multiple approaches to student success, and provides co-curricular activities that engage, inform, and educate. The College made an important stride in its commitment to its overall academic mission by creating and filling a position of assistant dean and head advisor to lead the **Academic Programs Office**. Since **Cary J. Green** began this position, he has reinforced existing relationships and forged new ones across campus to forward the College's academic programs.

Green has also begun to evaluate current academic programs, policies, and procedures. He prepared a “strategic agenda” that he will continue to develop and refine into a formal strategic plan, emphasizing enrollment management and professional development for faculty and students. Clear mission, vision, and values statements for the Academic Programs Office have been developed.

The College sponsored workshops for administrators, faculty, advisors, and graduate students from within the College. Mark Taylor is a nationally recognized expert on appropriate methods to improve persistence, learning, and student success for the current cohort of students. “Generation NeXt Goes to College” and “Post-Modern Pedagogy” will be followed by “brown bag” discussions on teaching and learning strategies, and will include a variety of topics including current best-practices, teaching technology, and learning styles.

A restructuring of the curriculum committee is underway to evaluate current programs and to evaluate future strategic directions for the College’s academic programs. This will include a review of academic offerings at peer institutions as well as input from industry and other professional partners. An increased emphasis on student professional development and international opportunities is key.

A recent website update encourages prospective students to consider opportunities that they may not have associated with agricultural sciences. The tagline, “Change the future. Right here. Right now,” speaks to the ability to impact the world with a degree from the College. Videos relating the student experience are streamed on the homepage. An audience bar on the home page facilitates navigation. Prospective undergraduate students and parents, and current students can access guidance and information on relevant topics targeted to these audiences. Interactive parts of the site permit two-way communication between the College and its audiences.

Readying students for careers: new programs and courses

Because most engineers are not well versed in the dynamics of plant growth and soil structure, the **Department of Biological and Ecological Engineering** has launched a new undergraduate program combining ecology and engineering. Here, students will learn the utility of plant roots as tools for managing irrigation systems, treating wastewater, and cleaning up environmental toxins. They will learn solutions to environmental problems that are less ecologically intrusive and often cheaper than traditional engineering methods. For example, filtering municipal wastewater through a specially constructed wetland for effluent cooling uses much less energy than mechanical chilling. This undergraduate program will produce engineers ready for field work. It is expected to grow to about 120 students within five years. The graduate program in biological and ecological engineering generally attracts students interested in research careers.

An active learning course in the Department of Horticulture designed and implemented by **David Sandrock** and **Tom Cook** is focused on professional development. *Career Exploration: Internships and Research Projects* (HORT 412) covers such topics as personality type and career goals; skills and knowledge required for career paths; evaluation of internships and research projects to pursue professional goals; and guidance on contacting potential employers, preparing resumes and cover letters, and interviewing skills and practice. Student comments indicated that the course was relevant and valuable. The course is now a requirement for all horticulture majors preparing them to identify professional goals and pursue them systematically and effectively.

Six undergraduate students were actively involved in high-throughput genomics research with **Erica Bakker**, assistant professor in the **Department of Horticulture**. One student received an Undergraduate Research, Innovation, Scholarship and Creativity fellowship for Fall 2008 in order to work on the generation of a DNA library using robotics and received a Howard Hughes Medical Institute fellowship to research seed dormancy genes at the molecular level during Summer 2008.

Bringing together industry and traditional students with a hybrid course

Hybrid courses are designed to meet the needs of students in the Viticulture and Enology Program whether they are on campus or are already employed in the viticulture industry. Traditional students participate in Horticulture 453 and 454: Viticulture I and II, on campus, while industry members throughout the state attend via video conference at five county Extension offices in Oregon, and through a community college in Washington. More than 30 individuals participated during the inaugural winter and spring 2008 terms. The blend of traditional students and industry members helped traditional students realize which questions are important to the industry. The exchange among distance students enhanced learning and facilitated networking between growers and county Extension faculty. The model will be continued with further development in technology and accessibility.

Benefiting from personal development, representing OSU

Student Ambassadors who represent the College attend on- and off-campus recruiting events throughout the state. Their experiences provide opportunities to hone leadership, public speaking, and team building skills, while benefiting from pre-professional development. A team of 16 Ambassadors for Agriculture, Forestry, and Natural Resources has been selected for the 2008-09 academic year and is drawn from throughout their respective units.

Students in **Food Science and Technology** are provided many opportunities to develop leadership skills and to explore new horizons as a part of their academic program. **Andrea Bouma** was recognized as an outstanding student in the College of Agricultural Science's 2008 Celebrating Student Excellence event. She was elected chapter president of the Institute of Food Technologists Student Association at Oregon State University and was invited to participate in a Strategic Leadership Forum in Chicago in March, 2008, and as a Pacific West regional representative for the national student association. Bouma is a 2008 Summer Scholar at Cornell University. Her professional goals include further exploration of product development and value-added functional foods.

AquaFish Collaborative Research Support Program, coordinated from OSU, was involved in training and supporting more than 90 students in the past year to complete their degree programs. While most were completed at regional universities overseas, the program partially supported more than 10 OSU students as well.

Gauging engagement and success through dissertation output

Dissertation output is an indicator of student engagement and success. In the past 5-7 years, two out of every three dissertations from the **Department of Agricultural and Resource Economics** have produced a published journal article. This is far above the national average of 28 percent. The departmental average for published journal articles from dissertations from the 1990-2000 decade was 38 percent.

Research findings inspire industry

Science Watch magazine in 2007 cited **the College of Agricultural Sciences as number one in the nation** among the top 100 federally funded U.S. universities in agricultural sciences for “citation impact of published research” in the field. *Science Watch* described the listing as showing the universities whose research papers attracted citations at a rate notably above the world average over the past five years.

Building on that national ranking for the College, a November 2007 report in the *Chronicle of Higher Education* ranked OSU among the top ten schools in eight of the disciplines measured, more than any other Oregon institution. The survey ranked OSU’s Wildlife Science program number one in the nation for conservation biology research productivity, 2000-2005. The Fisheries Science program was ranked number two, nationally. In the same study, Zoology was ranked number four, Botany and Plant Pathology and Forest Resources were ranked number five, Agricultural and Resource Economics and Pharmacy both were ranked number seven, and Science Education was ranked number nine. Several departments in the College including Fisheries and Wildlife, Horticulture, Botany and Plant Pathology, Rangeland Ecology and Management, and Crop and Soil Science have faculty who publish in the outlets surveyed during the study. The faculty published 95 articles, which were cited almost 1100 times. This study compared OSU to more than 300 other institutions.

Inspiring freshwater environmental quality

Technology has the ability to change the environment. OSU researchers are developing new technology to analyze recent, formerly undetectable levels of change, for example at the nano-level. Similar technology is being used to determine residues from human activity in wastewater, groundwater, and city sewage. **Jennifer Field, Staci Simonich, and Robert Tanguay of Environmental and Molecular Toxicology, with Douglas Barofsky, Chemistry**, have developed quantitative analytical methods suitable for trace-level analysis of little-studied contaminants. The methodology is relatively simple, yet robust enough for effective use with complex matrices, such as wastewater or sludge. This technique can be applied to ubiquitous contaminants such as fluorochemicals and carbon nanoparticles, which are of concern largely because of their potential toxicity or unknown impacts to human and animals. The method, which relies on tiny samples from municipal treatment plants, appeals to more and smaller communities to monitor community-level drug use patterns, for example. The research will eventually have worldwide applications.

Microorganisms can transform highly toxic chlorinated solvents like trichloroethylene (TCE) into inert components. **Lew Semprini**, director of the **Western Region Hazardous Substance Research Center** at OSU, is conducting cross-disciplinary research into microbial management of this widely used industrial degreaser and dry cleaning agent. In collaboration with Stanford University, Semprini and environmental engineering professor **Mark Dolan** have successfully injected contaminated soils with microbes and tracked how the organisms accomplish environmental cleanup.

Inspiring marine environmental quality

A bacterial disease in Pacific coastal waters is killing shellfish larvae in every commercial hatchery on the West Coast, leaving shellfish farmers without larvae stock for the 2008 growing season. Potential losses to the industry could be as high as \$110 million. Whiskey Creek Shellfish Hatchery on Netarts Bay is the second-largest producer of commercial shellfish seed on the West Coast. OSU's **Chris Langdon of Coastal Oregon Marine Experiment Center** in Newport is working closely with Whiskey Creek. Alan Barton, a researcher and engineer formerly with the Molluscan Broodstock Program at OSU's Coastal Oregon Marine Experiment Center in Newport, and Langdon have developed a complex filtration system to sterilize bay water and reintroduce beneficial bacteria that support larvae survival. Barton and Langdon developed the filtration system when the Newport site began reporting larvae deadloss in 2005; although Whiskey Creek has seen positive results, the filtration system does not speak to the health of Netarts Bay or the ocean.

West Coast Salmon Genetic Stock Identification project emerged in 2005 from the Klamath salmon disaster. It is an interdisciplinary partnership between the salmon troll industry and University, federal, state, and tribal agency scientists and managers. Oregon State University is a partner in this collaboration. More than 200 salmon fishermen representing 11 Oregon and three California counties have been trained in sampling protocols. These efforts have produced two years' data to support long-term ecosystem-based fisheries science and management. More than 10,000 samples have been collected and genetically analyzed to determine river basin of origin. Members of the fishing community, including vessel operators and crew members, fleet managers, and port-liaisons have received more than \$600,000 in compensation. An interactive "real time" website is being developed and should become available in the next few months. In lieu of an open Chinook fishery across most of Oregon and all of California, the OSU researchers have partnered with other research projects and Pacific whiting fisheries to continue at-sea research on Chinook salmon.

Inspiring environmental diversity

Managing fact-based conversation about the re-introduction of wolves into Oregon will support livestock producers and the environment. **Rangeland Ecology and Management** faculty member **Douglas Johnson** has two highly collaborative wildlife studies underway. One, in collaboration with the USDA Agricultural Research Service, the University of Idaho, other OSU faculty, and rancher stakeholders, is examining the behaviors of cows and wolves relative to one another. Because the wolf population in Oregon is low at this time, the work, which tags both species with GPS collars, will produce baseline data on the behavior of cows. The other study, with Honors College graduate Gail Woodside, now a graduate student in the department, studies the movement and feeding behavior of elk. This work is in collaboration with the Forest Service.

Inspiring food innovations

Oregon's **Food Innovation Center** began by catering to small-scale, often under-funded, food innovators and start-up companies. Under the leadership of **Michael Morrissey**, larger, established Oregon food manufacturers like Reser's Fine Foods and Bob's Red Mill also have begun to access services that the Food Innovation Center offers, such as product development, sensory testing, packaging design, and marketing. Under Morrissey's leadership, the center's expenses and revenues are balanced. Morrissey came to the center with the further goal of increasing collaboration between the OSU and Oregon

Department of Agriculture colleagues assigned there. With his Department of Agriculture counterpart, he has instituted an advisory board. A concept under study is a beef inspection program that would increase marketing outlets for local and small-scale producers. In addition, he intends to maximize revenues by balancing the workload of the center's service providers across the calendar.

Research findings sustain agriculture and natural resources

Emeritus Dean Thayne Dutson, Interim Dean Bill Boggess, and the College's External Relations and Marketing Director Betsy Hartley traveled throughout Oregon in spring 2008 to listen to Oregonians talk about their needs and the role of the College in addressing their needs. They covered 1700 miles in six days, making 13 stops. One stakeholder said, "Agriculture is a verb, action and activity are at its heart." Maintaining viable agriculture, especially at the urban-rural interface sustains land-based resources and contributes diversity and stability to Oregon agriculture.

Sustaining water quality and quantity

Adequate water supply has been a concern since the first settlers arrived in the West. Consequently, Land Grant researchers have long investigated water quantity, quality, and conservation. Like their peers throughout the region, OSU faculty promote a sustainable future through creative and adaptive water technology and methodology.

John Selker, Biological and Ecological Engineering, has a new way to take precise measurements in the natural world using existing technology. Selker and collaborators have deployed a technology using fiber-optic cable as a tool for making thousands of continuous temperature measurements in streams. Small changes in temperature alter the communications capabilities of optical fiber, permitting testing for temperature changes over many miles of fiber-optic cable, and delivering measurements accurate to 1/100th of a degree Centigrade. This provides new tools for aqueous observations as the climate changes. SensorTran Inc., of Austin Texas has joined Selker as a collaborator.

New low-pressure irrigation technologies conserve water and reduce the risk of groundwater contamination. Instead of irrigating to maximize crop yields, the new paradigm maximizes economic returns on the water. In collaboration with others, **Marshall English, Biological and Ecological Engineering**, is developing practical analytical tools. An advisory service will assist farmers as they change to the new system and supportive software will be installed on a national web system and made available via the internet. The system will save farmers money and reduce environmental costs, and has world-wide applications.

Results from research on automated irrigation control for containerized nursery crops show promise and have demonstrated potential water savings of more than 100,000 gallons per growing acre annually, while maintaining containerized crop growth and value. Ongoing research by **Jim Owen, North Willamette Research and Extension Center**, will determine feasibility of implementation for Oregon nursery systems. Results have been presented regionally, nationally, and internationally and have been or will be published in proceedings and peer-refereed journals.

The OSU **Department of Horticulture's John Lambrinos** and **Biological and Ecological Engineering's Michael Guzy** recently embarked on a project to develop a user-friendly assessment tool to aid landowners in quantifying the ecological values of riparian restoration projects. Workshops conducted by Lambrinos and collaborators will help the project development team solicit input from landowners about the tool and to identify and understand landowner needs and preferences for ecosystems services markets.

Climate change is expected to affect water availability through changes in the quantity, variability, timing, intensity, and form of precipitation. Climate change will alter decisions that affect water demand and associated disputes and also will affect incentives for nations to cooperate over shared water resources. The ability of market institutions to prevent and resolve future disputes will depend on the assignment, enforcement, and trade of well-defined property rights to water resources. **Rich Adams**, emeritus faculty, **Agricultural and Resource Economics**, has led interdisciplinary research and economic policy dialogues on climate change and agriculture for more than two decades. His most recent research examines the influence of incentives and property rights on future water demand. This research is part on an ongoing effort with faculty at University of Wyoming.

Sustaining Oregon's foothold in organic agriculture

Sustainability is a signature of Oregon agriculture; organic production is growing rapidly in response to consumer demand for organic products. The organic industry is aided by OSU researchers developing new varieties and practices that meet the certification requirements of this rapidly growing sector.

Special Research Grants (SRG) are line-item funding from Congress to support particular lines of research. Such grants are particularly necessary for specialty crops that are not eligible for national commodity programs. The expansion of consumer interest in organic foods has caught the eye of mainstream grocers, which now offer organic products. Large-scale organic operations demand innovative, less labor-intensive approaches. College researchers work with growers to develop those approaches. **Anita Azarenko**, **Department of Horticulture**, has secured SRG funds for organic production research. The funds will support research in forage for organic dairying, organic wheat, and organic potatoes. They will support beneficial insect predators and will assist OSU researchers in identifying vegetable varieties best adapted to organic production.

Sustaining agriculture through pest management

The **Pesticide Testing for Safe and Productive Agriculture** program of Oregon State University, operating from **North Willamette Research and Extension Center**, provides Oregon's specialty crop growers with safe and effective pest control options. This collaborative program, led by **Joe DeFrancesco**, is part of a network of field research centers throughout the nation conducting field trials and laboratory analyses to determine safe levels of pesticides in or on agricultural crops. About 80 percent of current field research involves reduced-risk products, alternatives compatible with integrated pest management, and biologically based products. Oregon produces more than 70 specialty crops with an annual farm-gate value of about \$3 billion. Specialty crops account for nearly 65 percent of the state's

total agricultural commodity sales. The data and information generated in the program contribute to a potential economic loss avoidance of about \$30 to \$50 million per year for specialty food crops in Oregon. Testing insures that pesticides are registered at safe application rates, protecting food, farmers, and farm workers. The environment is protected by labeling of reduced-risk pesticides with minimum impact on beneficial organisms and water resources.

High throughput genome sequencing and data analysis ultimately will inform Oregon wine growers regarding the effect of climate change on winegrape quality. These methods further promise impacts such as control of a serious fungal pest of winegrapes. Gene expression in wine grapes as a function of temperature is a collaborative project with **Erica Bakker** and **Patricia Skinkis** of the **Department of Horticulture**, and **James Kennedy**, **Food Science and Technology**. The Center for Genome Research and Biocomputing, conducts research, and trains students in the application of high throughput genome sequencing. Bakker's group has generated data that will contribute to the control of several serious weed problems challenging the integrity of Western ecosystems. The group recently has engaged in collaboration with **Carol Mallory-Smith** and **Oscar Riera-Lizarazu** from the **Crop and Soil Science Department** to work toward weed control paradigms.

Weed seeds may remain dormant for many years, threatening crop yields and quality into the future. **Ed Peachey**, **Horticulture**, is evaluating crop rotations that boost populations of weed seed-eating carabid beetles. The project is in its infancy, but already has demonstrated that certain insecticides reduce weed seed predation. This and other information will assist in development of weed suppressive and sustainable crop rotations.

Sustaining agriculture with innovative cropping systems

Identifying alternative crops or improving existing cropping systems provide new market channels and bolster revenue for local producers. Agronomic studies on alternative crops are important to local growers who seek to diversify, and thus stabilize, their operations. Refining tried-and-true production methods to address emerging environmental or agronomic concerns is another way in which College faculty maintain relevance with stakeholders. The activities highlighted below are examples of research activities that contribute to sustainable agriculture in Oregon and beyond.

In 2000 and 2001, tubers suspected to have been damaged by the potato tuberworm were found in Oregon. The pest spread and by 2004 and 2005 economic losses increased substantially. Five faculty members at the **Hermiston Agricultural Research and Extension Center**, **Silvia Rondon**, **Nick David**, **George Clough**, **Sandy DeBano**, and **Dan Hane** contributed to the understanding and control of this new and damaging pest. Their willingness and dedication immediately to provide much needed information exemplifies their understanding of Hermiston Agricultural Research and Extension Center's relationship to regional agriculture. Project participants gathered information and provided control information specific to the Columbia Basin, saving the industry millions of dollars. Potato industry leaders recognized the team's efforts, as did the College of Agricultural Sciences which honored the team with its James and Mildred Oldfield-E.R. Jackman Team Award.

Improving potato frost tolerance by 1°C to 2°C in frost-prone areas of the world could improve potato yields from 25 percent to 40 percent. **Horticulture** researcher **Tony Chen** successfully inserted genes from a cabbage relative into 'Umatilla,' an Oregon-developed potato cultivar, improving its frost tolerance. The bulk of potato varieties cannot survive temperatures below -3°C. Potatoes which can survive to -5°C, such as Chen's, should survive early season frosts and could extend the potato growing season, increasing yield. These improved potatoes should have a positive impact on potato production in frost-prone areas worldwide.

For every dollar invested in the Tri-state potato breeding and variety development program, the Pacific Northwest potato industry will benefit by almost \$39, according to a recent economic analysis. For decades, **Central Oregon Agricultural Research Center**, **Hermiston Agricultural Research and Extension Center**, and **Klamath Basin Research and Extension Center** researchers have been an integral part of the Tri-State potato development trials which bring new varieties to Pacific Northwest growers. In 2006, more than 12 percent of domestic potato acreages was planted to varieties developed and released by this program. Value to growers of these varieties is about \$150 million per year. Researchers estimate that improvements to one of these varieties alone, the Umatilla Russet, added \$12 million in farm gate value for 2006 crops. More recently released varieties comprise 15 percent of domestic seed potato acreage. The Tri-state Program has released more than 25 varieties since its inception. OSU has been the lead organization for about one-third of the releases.

Because agriculture is the most important economic sector highly dependent on climate, advances in understanding climate change impacts on agricultural systems are critical to the design of technologies and policies to mitigate climate change and facilitate adaptation to the changes that are likely to occur in the next decades and beyond. Recent collaborations between Oregon State University **Susan Capalbo** and **Andrew Plantinga** of **Agricultural and Resource Economics**, and **John Antle**, Montana State University, have developed data and models to assess the potential for carbon sequestration in forests, to assess economic feasibility of ecosystem service provision using secondary data, and to evaluate the potential for rangelands sequestration and adoption of alternative crops for biofuel production.

Oregon is recognized as a leading source of information nationally on teff, a forage crop; articles appearing in forage trade magazines have generated more than 400 phone calls to **Klamath Basin Research and Extension Center** from 44 states. **Brian Charlton** and **Rich Roseberg** improve germplasm and explore cultural management options for teff. Preliminary observations have been promising. In excess of six tons of seed were shipped to more than 30 states. Grower reports have been encouraging and seed sales in 2006 exceeded eight tons. Due to increased interest in oilseed crops for potential biodiesel production, Roseberg has expanded research on canola and added preliminary studies on camelina, an oil seed crop native to central Europe. These studies will offer alternatives to growers interested in biodiesel production.

Previously misunderstood mechanisms of germination control have been revealed by **Hiro Nonogaki**, **Horticulture Department** Seed Biology Program, in collaboration with **James Carrington**, **Center for**

Genome Research and Biocomputing. The results, published in *The Plant Journal*, will lead to an enhanced understanding and control of seed germination and stand establishment. OSU's Seed Biology Program has received widespread recognition and Nonogaki has been invited to give lectures and seminars in research institute such as the Danforth Plant Science Center in St. Louis, Riken Plant Science Center, Yokohama, and Centre of Edafology and Applied Biology, Murcia, Spain, and seed companies such as Monsanto, De Ruiter Seeds, Holland, Sakata Seed, Japan and Syngenta Seed Care, Switzerland.

Sustainable fruit production

Researchers in Oregon's primary orchard cropping regions have long worked to reduce environmental impacts from the production of these commodities. One outstanding change, implemented during the later 1990's, has been the reduction by 75 percent in the use of highly toxic organophosphate insecticides in tree fruit production. Work in integrated fruit production is on-going; researchers, implementing a strong outreach component, continue to support fruit growers in improvement of environmental quality while maintaining the economic sustainability of fruit production. The examples that follow are just the latest in more than a decade's achievement in this area.

Mature high-value Comice pears require up to 30 days in cold storage to ripen to perfection—until now. Working with standard equipment which pear growers already own and use, **David Sugar, Southern Oregon Research and Extension Center**, has perfected a combination of temperature and ethylene gas exposure—the plant hormone mature pears ultimately produce, which stimulates ripening. This finding, which permits growers to control the release of the pear crop and avoid competition with southern hemisphere supplies, has direct application to grower profitability. Sugar carried out his work in cooperation with southern Oregon growers.

Mating disruption of the codling moth has supported a dramatic reduction in organophosphate insecticide applications to apples and pears. The codling moth is the key pest in these crops; protocols for its control have been an important goal of OSU's Integrated Fruit Management program. Adoption of mating disruption recently has leveled off or decreased, largely due to the labor need for deployment of the hand-applied pheromone dispensers each spring. Results of on-farm research conducted by **Richard Hilton and Philip VanBuskirk at Southern Oregon Research and Extension Center** indicate that pheromone puffers, a new method of disrupting mating in the codling moth, performed as well as standard protocols and reduced labor costs by two-thirds. Increased use of pheromone puffers and outreach to local orchardists has once again implemented effective management of the codling moth.

A Klamath Basin test site has experienced the coldest winter temperatures of any successful lingonberry testing location in the United States. **Brian Charlton, Klamath Basin Research and Extension Center**, and **Ross Penhallegon, Lane County**, have identified two lingonberry selections with promise for high-elevation short-season environment. Data generated have determined the lower temperature thresholds for winter survival. By permitting farm diversification, the lingonberry could contribute to economic stability for growers who pursue the alternate crop.

Research findings support rural communities

College of Agricultural Sciences faculty have created a niche in applied economics at the intersection of natural resource, environmental, and rural economics. This unique approach focuses on the interdependencies between natural resources and human welfare, and between urban and rural places. Research findings accurately reveal and characterize strengths and vulnerabilities of Oregon's rural communities and support intentional, beneficial policy decisions. **The Rural Studies Program**, with Wallowa Resources, a local non-profit educational organization, has initiated two projects in Wallowa County. Earlier this year, the Rural Studies Program signed a memorandum of understanding with Wallowa Resources, committing to collaborative efforts over the next few years.

The first project is an effort to develop, with community input, a set of community indicators to be employed over the next five years, which will permit the county to track achievements toward its vision. These community indicators will be integrated into a dynamic simulation model of the Wallowa County economy. This project has engaged more than 70 people in four Wallowa County communities in a discussion of community goals and strategies.

An 18-month study initiated by **Bruce Weber, Agricultural and Resource Economics**, examines how lost Federal land revenue will impact citizens, businesses, institutions, and services provided by Oregon county governments. This research has already had an impact on public discussion and policy. Options for managing these impacts at the county-, state- and federal-levels are under examination, as are options to reduce negative impacts. Under other funding, **Mindy Crandall** is working to examine the spatial distribution of these fiscal impacts under the Secure Rural Schools Act. Weber was part of Oregon Public Broadcasting's *Thinking Out Loud* program on this topic in January. Two presentations on the findings have been made to the Governor's Task Force on Federal Forest Payments.

Education increases the likelihood that a rural household will move to an urban area but, in the absence of additional education, relocation alone does not increase the likelihood of moving out of poverty, according to research by **Weber** and Agricultural and Resource Economics graduate student **Alex Marre**. The two are examining links between rural-urban migration, education, and poverty in the United States. Results have been shared with state legislators in Montana and Oregon, and with the federal agency that administers the federal welfare program.

Outreach and engagement inform industry

The Boggess-Dutson-Hartley July 2008 "road trip" confirmed the value of continuing conversations with stakeholders about the importance and challenges of sustaining Oregon's agricultural, marine, and environmental systems. As the Extension Agriculture Program—this year renamed the *Extension Agricultural Sciences and Natural Resources Program*—adapts to a globalizing economy and digital communications, Extension educators embrace avenues of outreach and engagement beyond the traditional, as well.

Informing collaborations for alternative energy

The **Sun Grant Initiative** is a national program established to create new solutions for America's energy needs and to revitalize rural communities by working with Land Grant universities and their federal and state laboratory partners on research, education, and extension programs. The College of Agricultural Sciences is home to OSU's Sun Grant Center, and for the Sun Grant Western Region. Thayne Dutson,

who retired as dean in June, is continuing as director of Sun Grant until a new director is named. Interviews were held in July 2008.

In support of the initiative's goals, Oregon Sun Grant is conducting research and development into biomass production and conversion, especially in the areas of agricultural and timber residues, which represent major feedstock opportunities in the Western states, biogas from animal and urban wastes, and transportation fuels, in conjunction with power generation and co-product development. Examples of valuable co-products under investigation are industrial proteins and enzymes, pharmaceuticals and nutraceuticals, crop bio-controls, and structural materials that could be obtained from each state's unique crops and plants. In the area of bioremediation, agricultural scientists have been investigating the possibility of using fast-growing hybrid poplars and other crops to treat sewage effluent. By their nature, research and practical application in these areas relies on extensive collaboration with the private sector, other universities, and government agencies. Examples of these alternative energy efforts include:

Biofuels from agricultural and forest residues may provide low-carbon footprint fuels for the future. **Mike Penner, Food Science and Technology**, is studying grass seed straw and fruit pulp to find compounds that may be used to make ethanol. As it stands now, many growers and vintners pay to have such materials hauled away for waste disposal.

In OSU's **Department of Biological and Ecological Engineering**, **Roger Ely** and **Frank Chaplen** are harnessing solar energy via cyanobacteria to produce hydrogen for fuel cells. **Hong Liu** is polishing technology that can use sewage or wastewater from animal and crop production to generate electricity while simultaneously cleaning the water. Although the technology is not new, Liu's work includes an innovation that boosts the output of an energy cell.

OSU researchers **Tom Chastain, Crop and Soil Science**, and **Don Wysocki, Columbia Basin Agricultural Research Center**, are evaluating canola, an oilseed crop, for biodiesel production. In addition to biofuel feedstocks, canola is a good rotation crop with wheat.

Informing collaborations for healthy environments and healthy food

Beyond commodity quality considerations, industries linked to agriculture must address environmental concerns and develop enterprises to remain viable in an international market. The activities highlighted below support Oregon industry by modeling new management practices and new enterprises, or new approaches to existing ones.

OSU Extension collaborates with food producers, packagers, and growers to establish protocols for re-use of industrial waste water as an irrigation and plant nutrient source. One collaboration alone, brokered by **Don Horneck, OSU-Umatilla County Extension**, has recycled millions of gallons of water and returned nearly a million pounds of nitrogen to agricultural fields, reducing the need to pump clean water and add fertilizer.

Bob McReynolds, Extension vegetable production specialist for **North Willamette Research and Extension Center**, identified a need for on-going food safety educational efforts for growers and field workers long before fresh spinach and tomatoes attracted media attention. Fresh vegetables are important crops for the north Valley, and McReynolds works with growers and packers to reduce the risk of

contamination of vegetables. *E. coli* contamination of the nation's vegetable crop has caused consumer fear and resulted in grower loss nationally.

Oregon's impact in the artisan cheese sector is out of proportion to the relatively small volume of milk produced in the state, and Oregon has witnessed considerable growth in artisan cheese production since 2002. Oregon cheese has won acclaim from connoisseurs throughout the nation. **Lisbeth Goddik, Food Science and Technology**, has begun to focus on this rapidly growing sector. Goddik, with the Oregon Department of Agriculture and industry leaders, is updating the on-campus dairy pilot plant, an important resource for aspiring cheese makers. Goddik's laboratory course has stimulated student enthusiasm for this area. Her work has attracted media coverage including stories in *The Oregonian* newspaper and on KVAL Channel 13 news.

While the Viticulture Extension Program is relatively new, **Patricia Skinkis, Extension viticulture specialist**, hopes to expand collaboration and the network of expertise around the state to strengthen research, education, and outreach for Oregon's winegrape industry. Skinkis works closely with county faculty, with faculty in Horticulture, in Food Science and Technology, and with USDA Agricultural Research Service Horticultural Crop Research Unit scientists to provide viticulture outreach through workshops, field days, newsletters, and research projects. Skinkis's participation has been key in the production of research-based Extension publications on a number of timely topics.

Outreach and engagement strengthen agriculture and natural resources

Strengthening ecosystems with beneficial insects

The farmgate value of crops requiring insect pollination was conservatively estimated at \$460 million for 2007 for Oregon. Oregon beekeepers provide pollination services throughout the West, supporting crop production in California and beyond. A range of pathogens and disorders have the potential to impact Oregon honey bees and the crops they pollinate. A new concern, 'colony collapse disorder,' was first recognized by beekeepers on the East Coast in 2006. By 2007, it was found in many other states and it may now be present in the Pacific Northwest.

OSU resources to address threats to honey bee health and to assist in studying colony collapse disorder include:

- A **Honey Bee Diagnostic Service** provided by OSU Extension Insect Clinic. Extension entomologist **Jim Young** oversees the Diagnostic Service, which was created this year in response to concern from farmers, apiculturists, and the general public. The lab diagnoses non-viral diseases and pests of honeybees.
- The Insect Clinic, in collaboration with the Oregon Department of Agriculture, is conducting a survey of Oregon honey bee keepers to determine the practices and problems currently affecting the state's apiculture industry. The survey, created by Young, will be distributed with annual honeybee hive registrations by the Oregon Department of Agriculture. The Diagnostic Service may expand services to Oregon beekeepers based on survey results.

- A new Honey Bee website (http://www.bcc.orst.edu/bpp/insect_clinic/bees.htm) provides information on honey bee pests and pathogens.
- Research on native bees and pollinators is ongoing at OSU, in collaboration with growers. This work is covered in more detail just below.
- OSU expertise and partnerships can contribute to a national rapid-response committee established to coordinate research of bee colony health issues, should the need arise. OSU offers a team of research virologists, with the tools and expertise to contribute to investigations of new honey bee diseases; and ongoing collaboration with research partners, including ODA and other universities, which can speed discovery through information exchange.
- At the request of the Oregon Beekeepers Association, OSU assumed leadership of a revision of *How to Reduce Bee Poisoning from Pesticides*. This PNW Extension publication recommends pesticide use practices for commercial agricultural production. The December 2006 revision includes innovative formatting from the original 1988 document and has been expanded to include basic recommendations for pesticide use with native pollinators.

Two new research and extension positions have been funded through an emergency package related to bee health approved by the Joint Legislative Emergency Board; OSU will conduct a nationwide search to fill them. Funding also will be used to increase the diagnostic capability at OSU's Insect ID Clinic. Although the funding is limited to 10 months, the College will work with legislative contacts to renew funding in the 2009-11 budget for the Oregon University System.

A farmer-participatory approach is at the heart of **Gwendolyn Ellen's Integrated Plant Protection Center** success with the *Farmscaping for Beneficials* project. Ellen has worked in collaboration for more than five years with Oregon Tilth, NRCS Plant Materials Center, the Xerces Society for Invertebrate Conservation, and organic farmers to expand project in the Oregon's Willamette Basin. Thirty-eight percent of the nation's organic growers identified habitat for beneficial insects as one of their major pest management strategies, yet relevant information on this technique is limited. This project uses biological control methods such as beetle banks, hedgerows, and insectary plantings on farms to increase regionally relevant data on their effectiveness and to increase local knowledge of their implementation. Eleven research banks have been constructed to test the impact on beneficial populations of plant selection and sizing and spacing of beetle banks. About 50 Oregon wheat and grass growers toured beetle banks at the **Hyslop Field Research Station** in May 2007. More than 100 growers toured the banks the following year. Non-collaborative growers in Oregon and Washington are adopting this strategy. Among many other venues, Ellen has presented the beetle bank project at the USDA Sustainable Agriculture Research and Education's 20th Anniversary Conference in Kansas City, Missouri. More than 120 attended the standing-room-only panel.

Strengthening organic production

As demand for organic products promotes more extensive production, integrated research and outreach contribute to the resolution of production and environmental concerns. Organic growers at all levels of production collaborate with OSU faculty to strengthen organic production within the state and beyond. Here are a few examples of activities that strengthen organic production.

Ed Peachey, Horticulture, and **Clark Seavert and Jim Julian, North Willamette Research and Extension Center**, convened a group of five processed vegetable growers considering the transition to organic production. Representatives from dairy and forage industries gave perspectives on products of use to their industries and which would fit into transitional rotations. Seavert has introduced software to evaluate the costs and returns of various crop rotations. Growers have been trained in the use of the enterprise budget software and can analyze various crop rotations. Further, the growers collaborate on the weed seed predation project described on page eight. Outputs of the project include enterprise budget sheets to maximize returns during the transition to organic certification.

Alexandra Stone, Department of Horticulture, is the lead of eOrganic, a web community of farmers, researchers, and educators who exchange objective, research- and experience-based information about organic agriculture. The workspace is under development in response to eXtension, the national Extension service aiming to provide the best of the best outreach materials. It is a free searchable collection of articles, videos, and presentations including an “ask the expert” feature. The eOrganic workspace will be populated with content as the community identifies content from original sources, content partners, and open content sources.

Organic production may be associated with reduced water quality if growers apply manures and other fertility inputs without sufficient thought. In response, **North Willamette Research and Extension Center** small farms faculty member **Nick Andrews**, in collaboration with **Dan Sullivan, Crop and Soil Science**, and Oregon Tilth, has developed a web-based fertility decision making tool. With the *Organic Fertilizer Calculator*, growers compare the cost and nutrient value of various organic fertilizers. It incorporates a new model of plant available nitrogen developed at OSU and Washington State University. An Extension and Experiment Station Communications-published user’s guide accompanies the calculator, which is available on the OSU Small Farms website (<http://smallfarms.oregonstate.edu/organic-fertilizer-calculator>). It has been downloaded more than 2,500 times. A closely related project evaluates grower estimates for total nitrogen contribution from cover crops to caneberry and vegetable producers. Growers will realize the benefits of cover crops as the cost of nitrogen fertilizer increases, and are likely to increase the use of over wintering cover crops with subsequent reductions in soil erosion.

Published less than two years, *Oregon Small Farm News* (<http://smallfarms.oregonstate.edu/newsletter>) received a national award for its high-quality content and appearance from the National Association of County Agricultural Agents. Faculty members associated with the OSU Extension Small Farms Program developed and produce the newsletter. Published online quarterly, it is a source of science-based information for small-scale farmers in Oregon and beyond. Issues feature information on farm management, marketing, crop and livestock production, and upcoming educational events. Striking cover photographs for each issue depict seasonal farm scenes from throughout Oregon. Contributors include OSU faculty, Washington State University faculty, Oregon Department of Agriculture staff, and Mercy Corps staff, among others. Current circulation is approximately 6,000 and growing.

Strengthening natural resource management

Oregon's wealth of environmental resources continue to be among the state's chief assets. Increased transportation costs, globalization of agricultural markets, and population growth are a constant challenge to the conservation of these resources. Outreach and engagement efforts to support resource conservation are an important part of every program area. These broad outreach examples demonstrate major themes in the conservation efforts of the College's faculty:

Invasive species threaten Oregon ecosystems and economies. Extension faculty are engaged in work that helps to halt the progress of these silent invaders—from rangeland weeds to aquatic invasive species—and halt the loss of billions of dollars of productive capacity from land and waterways.

Along the Columbia River and in central Oregon, OSU researchers help growers thrive on land receiving less than 10 inches of annual precipitation. In addition, they are demonstrating that management of invasive junipers contributes to groundwater recharge and well rejuvenation.

Unlike point-source pollution that can be traced to a pipe or a mine, non-point pollutants enter waterways from anonymous sources across the landscape. Working with orchardists on the flanks of Mount Hood, OSU researchers have helped to reduce greatly the flow of organophosphates and other broad-spectrum pesticides into the region's waterways and the nation's food supply by careful monitoring, reduced use of pesticides, introduction of integrated pest management techniques, and increased awareness of the unseen consequences of farming practices.

Outreach and engagement contribute to stable communities

Extension Agricultural Sciences and Natural Resources expands Metro presence

Natural resource concerns, food systems, land use, and the positive integration of urban and rural interests will continue to provide many points of engagement for Extension faculty within the Portland metropolitan area, which is of primary importance for Extension.

The 2003 closure of the Multnomah County Extension office underscored OSU's need to re-invent how best to serve citizens' needs and interests in urban settings, develop new partnerships with public and private organizations, and to encourage all parts of OSU to become more engaged in Oregon's largest metropolitan area. Metro Specialist **Beth Emshoff** is developing a model of engagement for Oregon's metropolitan regions. Agricultural specialists, particularly those in horticulture, agricultural and resource economics, and the small farms program have led in the development of new points of contact for outreach and engagement. The arrival of Urban Horticulturalist **Weston Miller** in 2007 gave Extension a highly visible presence in relation to urban gardens, school and community gardens, Master Gardener volunteers, and a wide range of agencies with interests related to food and horticulture. Residents of Oregon's high-density communities have begun to see this program as an information source for sustainable living.

Because Miller has a capable Master Gardener Program coordinator in **Jordis Yost**, he focuses on concept development with Emshoff, new avenues for outreach, and grant writing. These activities support

his efforts to establish the relevancy of an Extension Agricultural Science and Natural Resources presence in the Metro area, while maintaining a well-established linkage to OSU.

In collaboration with Portland State University, Miller has a new partnership and a quarter-time appointment as leader of PSU's *Learning Gardens Laboratory*. Gardening thus becomes a vehicle for hands-on curriculum presentations within the Portland Public Schools. Miller will oversee and direct activities at PSU's 12-acre facility to ensure cohesive, enhanced learning outcomes for Portland Public School students.

Growing Gardens serves low-income families in east Portland, providing raised garden beds and gardening information to enhance nutrition and extend food dollars. Miller serves on an advisory committee and co-facilitates a metro area youth farm-garden educators' network.

Currently, Miller serves as chair of the Multnomah Food Policy Council, a citizen-based advisory council to the City of Portland and Multnomah County. It brings together citizens and professionals to address issues regarding food access, land use planning, local food purchasing plans, and other policy initiatives.

Master Gardeners welcome a new face to a traditional Extension program

Extension programs and programming, no matter how prestigious or highly regarded, must evolve to maintain relevancy with new generations of citizens. The Extension Master Gardener program benefits from fresh leadership under **Gail Langellotto**, who joined the Horticulture Department in 2007, and who brings a fresh perspective to this popular program.

Although historically marketed to Master Gardeners, the 25th annual Gardeners Mini-College has been aggressively promoted to non-Master Gardeners. The event offered classes, workshops, and tours highlighting the many sustainable gardening techniques that OSU Master Gardener volunteers practice and promote. This is particularly important, owing to a common erroneous belief that Master Gardeners are best as a source of information for chemical controls to garden problems.

The traditional Master Gardener program will be strengthened by innovative options which permit program expansion into urban and rural audiences constrained from participation by time or proximity. In partnership with OSU Extended Campus, Langellotto will launch a new online version of OSU's Master Gardener basic training in September 2008. The web-based course will offer basic Master Gardener training and the opportunity to earn a Certificate of Home Horticulture. Another option will be added in January 2009, allowing participants to complete the 40 to 70 hours of volunteer service required to become a certified OSU Master Gardener.

In collaboration with **Gail Langellotto, Horticulture**, and **Beret Halverson, OSU-Clackamas County Family and Community Development Program**, the *Garden Enhanced Nutrition Education* program offers educational support to school gardens. Garden produce is used in the school lunch program; youth are introduced to a variety of vegetables and to examples of how they may be prepared. In a novel partnering of Master Gardeners with their communities, Langellotto teaches Portland metropolitan area residents about the proper use, storage, and disposal of pesticides, as well as techniques to reduce or eliminate household pesticide use.

Outreach and engagement contribute to domestic water conservation

Although domestic landscape irrigation could be reduced to as little as 10 percent of the total water used, at this time up to one-third of all domestic water used in the West is applied to landscapes. *WaterWise Gardening* is a statewide program providing gardeners information on low-water xeriscapes. **Linda McMahan, OSU-Yamhill County Extension**, with colleagues **Neil Bell, OSU-Marion County Extension** and **Amy Jo Detweiler, OSU-Deschutes County Extension** have created a website, established demonstration gardens, and provided training to hundreds of gardeners. They have also reached out to nurseries to market the *WaterWise* concept at the retail and industrial level. *Streamside Gardening* is another program which guides rehabilitation of streamside habitats near homes in garden-like settings. Collaborative with Forestry and Sea Grant, the program has reached more than 400 households. McMahan provided leadership in the production of a cross-agency, collaboratively produced and funded *GardenSmart* booklet which assists with the identification of common invasive landscape plants and offers environmentally-friendly native and ornamental alternatives.

OSU Extension's Watershed Stewardship program provides the skills and knowledge necessary for people to effectively restore and sustain the watersheds in which they live. Nearly 400 people have completed the rigorous 80 hours of classroom training and provided their communities with 40 hours of on-the-ground project work.

Outreach and engagement contribute to community, economic stability

The *LaGrande Observer* newspaper characterized **Bruce Sorte** as the "go-to guy" for agricultural economics issues in Eastern Oregon. Sorte, an Extension community economist, works with Eastern Oregon's rural communities. With **OSU-Union County Extension** as his home base, Sorte maintains regular hours in Hermiston, Burns, Lakeview, and Madras. Sorte collaborates with county Extension faculty and is available to county commissions, service organizations, and chambers of commerce. He is developing economic models for each of the 18 Eastern Oregon counties. These will provide information for Extension faculty, local governments, and businesses. A recent appearance on a radio call-in show in Hermiston shows promise of becoming a regular forum. In other efforts, Sorte was lead author on an analysis of the contribution of agriculture to Oregon's economy, published in February 2008, and led a study of the impact of the Port of Tillamook Bay Railroad storm damage this winter. A new Extension community economist position for the west side is in recruitment, and will compliment Sorte's efforts.

The **Sustainable Rural Communities Initiative** coordinates teaching, research, and outreach focused on the environmental and economic sustainability of rural communities and their social and cultural well-being. Approaches include preparation of the next generation of citizens for leadership, expansion of citizen and policy-maker understanding, and empowerment of communities in developing appropriate strategies.

The **Oregon Rural Community Explorer** is a web-portal under development at the OSU Library, in conjunction with **Rural Studies Program** faculty in the Agricultural and Resource Economics

Department and the **Family and Community Development Program**. It will enable access to social, economic, and environmental data and historical records for 723 named places and all 36 counties within Oregon, by linking to secondary data from national and state sources. The expected launch date is October, 2008.

Enhancing diversity and community

Diversity and inclusiveness

The College of Agricultural Sciences has for some time taken seriously its responsibility to encourage and enhance diversity among its students, faculty, and staff, and to nurture an inclusive culture. Of course, there are no certain paths and the College has explored several, including one in which the planning and activity was vested in a representative committee. Among other things, committee members proposed a survey of the climate for diversity in the College. The survey was carried out in 2006 and results made available in the 2007-2008 school year.

Survey results reminded us that few, if any, respondents felt they could speak to the climate for diversity in this *entire* college, given its size, geographic scope, and distributed character. Most respondents were able only to address their sense of diversity and inclusiveness in their own work unit. Among leading findings from the survey was that women were significantly *more likely* than men to believe that the overall climate for diversity in their units was inadequate. Women were significantly *less likely* than men to believe that values and beliefs were respected in the units where they work, and that efforts are adequate with respect to gender equity and recruitment of women.

With survey results in hand and a commitment to move forward, then Executive Associate Dean Bill Boggess encouraged a somewhat different approach to advancing diversity and inclusiveness. Although he hosted and actively participated in all of the College's diversity and inclusiveness activities this year, Dean Boggess said "I would like our work not to be top down but, rather, based more on grass roots efforts." His guidance reflected three philosophies that manifest themselves in many facets of College operations:

- Margaret Mead: *Never underestimate the power of a small group of committed people to change the world. In fact, it is the only thing that ever has.*
- Margaret Wheatley: *It takes courage to start a conversation. But if we don't start talking to one another, nothing will change. Conversation is the way we discover how to transform our world, together.*
- The College's own: *Whatever we do, it must be authentic.*

Committed as we were to trying something different, we sent an electronic mail message to all faculty and staff in the College, inviting to lunch on November 8 anyone who was committed to making a difference for diversity and inclusiveness. We made clear that attendance was voluntary, and that we would explore what we might do by working together. This first of four conversations over lunch attracted about 20 people, most of whom were women. After a wide-ranging exploration of ideas, two self-identified groups went to work on things they felt were important.

One group, working off-line before the next over-lunch conversation in early December, concluded it is at the unit level that the climate for diversity and inclusiveness is established. Therefore, the group reasoned, unit leaders such as academic department heads and office managers can have a strong, positive influence

on the climate. Based on their report we chose to invite unit leaders and office managers to our third luncheon, in February.

A second group, arguing for an assessment of how students see the climate for diversity, chose to work on preliminary design criteria for a survey. Using their work as a springboard, College administration initiated collaboration with the OSU Survey Research Center to commission a survey of students. Based on what we learned from the design and execution of our earlier survey, we expect the student survey will be simpler and will provide more readily interpreted results. Survey design will progress over the summer, field testing in the fall, and the full survey in early winter term.

Response from unit leaders and office managers to our invitation to join the group was gratifying. About 18 unit leaders and office managers attended, in addition to those who had taken part in earlier luncheons. Conversation was rich in two rounds of small-group exchange on such topics as:

- What does it mean to have a positive climate for diversity?
- What have you learned in your own work about diversity and inclusiveness in your department?
- Are there things that are missing that would help you better provide positive leadership in this area?
- If people are to feel welcome and supported in their unit, what are the key underpinnings that, if present, help to achieve that?
- What awareness about diversity is there that, if present, would make a difference?
- What's present in your department or office that advances diversity and inclusiveness?
- What's missing in your department or office that, if present, would advance diversity and inclusiveness?

In the debrief, it became clear that as individuals considered what it was like for them to work in their individual units, in the College, and the University, experiences were qualitatively different from one another. Not only did men's and women's experiences differ, as the survey had suggested, but one's position in the organization (classified staff, professional faculty, academic faculty, administration) sometimes was predictive of the quality of the work experience. At the risk of oversimplifying, participants described experiences at work that might well be considered to be *classism* and *sexism*.

We were fortunate to have the participation of **Donna Champeau**, director of the Office of Women's Advancement and Gender Equity, and **Jodi Nelson**, executive assistant to the vice provost for Student Affairs. They brought dimensions of expertise and experience that enriched our understanding of diversity and inclusiveness. For example, we learned from them that experiences that women reported in our survey are by no means unique to our College or even to our University. Champeau and Nelson have told us they are willing to continue partnering with us as we move forward with our plans.

In particular, Champeau and Nelson have joined us in working with **Paul Axtell** and **Cindy Officer**, of Contextual Program Designs and who are long-time partners with OSU in staff development training about relationships and workplace behavioral practices. We have asked Axtell and Officer to propose an integrated staff development plan with two principal emphases. One, for unit leaders, would build capacity for the jobs they hold. A recent workshop session for unit leaders sponsored by the provost and led by Axtell demonstrated that unit leaders University-wide welcomed such an opportunity. For unit leaders in our College, the professional development experience will include, but not be limited to, significant components on leadership roles and responsibilities related to climate and diversity.

A second emphasis in the College's staff development plan embraces a program for all classified staff—an area where we believe there is the greatest need for attention to diversity, inclusiveness, and community building. Drawing on positive experiences from similar activities in the division of Student Affairs, counsel from Champeau, and design from Axtell and Officer, we anticipate listening sessions with classified staff, followed by continuing work with them on matters they deem important in improving the workplace climate. This planning continues, with the prospect that we may begin work in the summer before the 2008-2009 school year begins.

Adding to the importance and urgency of work with employees, the University has announced it will implement seven business service centers, including one for Natural Resources that will include our College. There are significant concerns—again especially among classified staff but not limited to them—about what the shift to service centers will mean for careers, relationships, and job assignments. When one adds these to the earlier concerns of classism and sexism, it is easy to conclude this is an opportune time to inspire staff toward optimal working relationships. We intend to coordinate our efforts with Human Resources' staff development leader Paul Biwan.

Individual units in the College have their own plans for diversity and inclusiveness and make progress to varying degrees. As an example, the Department of Fisheries and Wildlife has been intentional about its efforts to increase the “pipeline” of students of color into their professional disciplinary fields. Dan Edge, head of that department, reports:

“Over the past two years, the Department of Fisheries and Wildlife has focused on recruiting a more diverse student population. This year (2007-2008) we had 14 undergraduates of color plus 4 additional students from a 2-plus-2 agreement with Tuskegee University. Our graduate program included 12 students of color. Although these statistics suggest we still have a long way to go, they represent substantial improvement for a profession that historically has had very poor representation from underrepresented groups.”

Other unit-initiated diversity and community efforts

Individual faculty and staff support the College's aims of diversity and inclusiveness through programmatic and service opportunities. These activities are as varied as the needs of Oregon's communities and the interests of our faculty. The relationship, information, and service niches they fill promote the quality of life and the regard of citizens throughout the state for the University.

A League of Women Farmers was established in October 2007 in southern Oregon by **Melissa Matthewson** and **Maud Powell**, Small Farms faculty stationed at **OSU-Jackson County Extension**. Within a framework of farm tours and potlucks, the group discusses diverse topics such as the balance between farm and family, weed management, and marketing. Southern Oregon small-scale agriculture now benefits from a strong network of women farmers, who can call upon each other for resources and education. Ideas are generated and new farm relationships established at each meeting, with 10 to 60 women in attendance. Peer-to-peer learning and a list serve facilitate information exchange among the women.

An annual pumpkin patch has allowed faculty and staff of the **Columbia Basin Agricultural Research Center** to interact with most of the elementary students in Pendleton and has generated good publicity in the local paper. **Paul Thorgersen**, facilities manager at the Pendleton station, has had a pumpkin patch for more than 10 years. The station invites local schools and others to visit and pick a pumpkin. Thorgersen has also arranged for Lynn Tompkins, director and raptor specialist with Blue Mountain Wildlife, to meet with the students as part of the visit. Tompkins has brought a variety of raptors to the station. In 2007, more than 900 students from the Pendleton School District visited. Volunteers from the Eastern Oregon Children's Museum also have picked pumpkins to take back to the museum, as have volunteers from the Pendleton Oktoberfest. This project results in great community visibility; the station receives positive comments from parents whose children bring home pumpkins.

Phil Hamm is another faculty member with a vested interest in the community in which he lives. Hamm, superintendent of **Hermiston Agricultural Research and Extension Center**, has just completed his ninth year of service on the Hermiston School Board. Hamm's philosophy is that each of us is responsible to the community in which we live. He expresses his leadership through the school board to support local youth and ensure the quality of their education. Hermiston is the largest and fastest-growing school district in eastern Oregon, with 5,000 students and a staff of 500. The district vision is to be the premier school district in the state; Hamm lives a piece of that vision. Although school board service presents significant challenges, Hamm notes that it gives rewards that money cannot buy.

A clamor of questions and concerns from the center's neighbors arose when the **North Willamette Research and Extension Center** removed trees planted in 1965 for research. In response, Superintendent **Clark Seavert** hosted a two-hour walking tour during which the station's research aims and basic methodology were explained. Although only 20 neighbors turned out for this year's tour, it was highly successful and participants encouraged another tour, to which they enthusiastically promised to bring their friends. Quipped Seavert, "If I heard it once, I heard it 20 times, that people had lived here for 'x' number of years, looking over the fence wondering what we did. Now they are much more informed. I believe everyone is impressed with our efforts!" Neighbors have been invited to return to the station to evaluate barrier plants for ODOT's use on the on interstate. The trial will be established on the site formerly occupied by the removed trees.

Extension and Experiment Station Communications faculty produce educational materials to reach a diversity of audiences, including Spanish-language publications and videos to help Oregon's Hispanic families in their work and at home. Extension and Experiment Station Communications editors, working with the College's scientists, translate research findings and technical information into useful materials for practitioners and lay audiences. Agricultural editor **Teresa Welch** produced 21 Spanish-language publications, among a total of 1,030 agricultural publications available online and in print that she has developed with publishing manager **Andrea Dailey**.

OSU Extension and the Oregon Food Bank have co-developed a *Food for Oregon* website. Using funds from Extension Family Community Development and the Extension Agricultural Sciences and Natural Resources Programs, Food for Oregon includes a database of food resources and supports one of the

Oregon Hunger Relief Task Force's priorities. "Connecting Oregonians to local and regional food resources is good for hungry citizens and good for food producers," said Governor Ted Kulongoski. The database of community food programs attracts no fewer than 500 visitors each month and includes more than 250 locally available food outlets of every description, as well as nutrition education information. The audience for the site is all Oregonians, and it supports a major premise of community food security: reliable access to nutritious, affordable, and culturally appropriate food resources for all citizens.

International activities and accomplishments

International programs touch *many* regions of the globe

International activities in the College of Agricultural Sciences are varied, diverse, and fairly widespread across its units, but they are largely the product of independent faculty initiative rather than being part of a coordinated, planned effort at the College or University level. The College's international activities include research with strong international dimensions including bi-directional cross-border collaborations; leadership for a grant-funded worldwide aquaculture collaborative research support program; a World Agriculture course that provides students with opportunities to see food production in other nations; and individual faculty travel. In large part, this random character reflects a lack of unifying resources that would help shape a more deliberate, interrelated program.

Recent conversations among unit leaders in the College explored perspectives on international activities and identified broad parameters within which a more integrated College-wide effort might be framed. Not surprisingly, they share strong similarities with the College's domestic programs. For example, among the **top global issues** to which our College can contribute science, creativity, and outreach, the unit leaders identified these:

- Hunger abatement, food security and safety, agricultural policy, and sustaining agricultural productivity;
- Water management and policy, availability, and quality;
- Environmental management and policy;
- Certain dimensions of climate change; and
- Certain aspects of renewable energy.

Thinking of **global issues most important for our students** to understand and appreciate, the unit leaders saw many of the same issues, but added others:

- Understanding the global economy, global hunger, and their relationship to food security for the United States;
- A full appreciation for concepts of global sustainability, including the role of policy-making, and global resource allocation and availability; and
- The growing centrality of water policy, water availability, and water quality.

They affirmed the importance of our students having cultural literacy, including opportunities for gaining cross-cultural appreciation by traveling abroad.

With respect to **recruiting graduate students** from other countries, unit leaders said they felt many traditional “pipelines” that earlier had supported graduate student enrollment were drying up, at least in part because of immigration restrictions imposed by the United States government after 9/11. As possible alternatives, the unit leaders suggested:

- Leveraging already established connections, afforded through our research collaborations, to recruit graduate students more intentionally;
- Identifying our greatest research strengths (plant breeding, for example), then targeting other institutions with similar strengths where students there might see OSU as an attractive next step professionally;
- Simply being more intentional at the College level to say, “This is an area where we would like to attract more graduate students,” then developing a strategy to achieve the goal; and
- Actively participating in University-level graduate student recruiting initiatives.

Unit leaders also identified **regions of the world** with particular significance for the College. They included:

- Asia, especially China and India, and Pacific Rim trading partners;
- Latin America;
- Africa;
- New Zealand (long-time relationships there); and
- France (with emphasis on viticulture and enology).

As they considered strategies that might encourage more **systematic, integrated international programs**, unit leaders suggested:

- University-level efforts such as having a clear University strategy within which the College could see its part; improving the ease and efficiency of processing international research grants and cooperative agreements; ensuring that the University’s international intentions (and capacity) are well-represented in Washington, D.C.; and maintaining a current, easily located listing of memoranda of understanding with other universities and sister-university agreements;
- Offering degree programs leading to dual bachelors degrees in a scientific discipline coupled with an international degree; and
- Offering “two plus two” programs for undergraduates, with two years’ study at OSU and two years’ study at an international institution.

Unique pairing advances marine mammal research

Steve Irwin was a wildlife expert and conservationist whose television program *The Crocodile Hunter* brought him world-wide fame. Irwin died in 2006 during a filming accident in Australia’s Great Barrier Reef. Before his death, he had planned a research trip to the Antarctic. His widow, Terri Irwin, ultimately donated the non-refundable trip to **Bruce Mate**, director of OSU’s **Marine Mammal Institute**.

Collaborative efforts between Terri Irwin and the Institute are a first of this kind with an American university. In September 2008, Mate, his research team, and the Irwin Australia Zoo will collaborate on a

project to tag up to 25 humpback whales in the Aleutian Island chain. The project will shed light on the whales' movements throughout the Pacific Basin. The non-lethal methods used by Mate and his colleagues can provide much of the same information as culling or harvesting whales. "Thanks to Terri's generosity and enthusiastic interest in protecting threatened wildlife around the world, we'll be able to significantly expand the research capacities of the OSU Marine Mammal Institute," said Mate. "We hope to show that it's quite possible to gather the rich breadth of critical information we need to help protect whales without killing or injuring them."

Collaborative research supports international health and economic stability

The **Aquaculture Collaborative Research Support Program** is inherently international in its scope. International multidisciplinary partnerships advance science, research, education, and outreach to promote the well-being and economic stability of the developing world. **Hillary Egna**, executive director, oversees efforts on many continents.

In Mali, West Africa, a new project supports the development of aquaculture and mitigates fishery losses. Some unique aspects of this project involve collaborative information sharing between Kenya and Mali, and between Mali and Thailand.

The presentations at the well-attended World Aquaculture Society meeting in Busan, Korea principally related to sustainable aquaculture in poorer countries. Representatives from more than 18 countries attended.

The program's research support group responded to emergency situations in two key host countries during 2007-2008. Flooding in Mexico and political strife in Kenya posed serious challenges, and temporarily interrupted research and student thesis work. The program's 2008 library donation was dedicated these countries. Egna and her colleagues engaged in strategic planning to support disaster recovery efforts.

Egna and **James Bowman**, also of Aquaculture Collaborative Research Support, were joined by scientists representing Southeast Asia, Polynesia, and Latin America to discuss best practices for sustainable fisheries enterprises. This team focused their energies on solving aquaculture problems in Brazil and Vietnam. Discussion topics included production, marketing, market access, investment, credit, government policy, technology transfer, capacity building, institution building, and outreach.

Supporting international initiatives from the Green Revolution to the Beijing Olympics

Crop and Soil Science has had a long history of involvement in international activities. Department faculty were part of the Green Revolution that brought improved wheat varieties initially to the Asian subcontinent and eventually to other parts of the world. The department has trained more than 150 international graduate students over the past 30 years.

Work with scientists in China began in 1982 and continues today. Relationships built by **Harold Youngberg**, **Bill Young**, and **David Hannaway** have led to detailed discussions about cooperative research and student exchange programs with Nanjing Agricultural University. Contacts and programs begun in China in the early 1990s led to the development of a Foreign Agricultural Service Market Access Program request and a series of grants to the Oregon Seed Council. Sales of Oregon seed crops

increased from 50,000 pounds in the early 1990s to more than 15 million pounds today. The public outcome of this work will be that much of the grass under the feet of athletes and viewers at the Beijing 2008 Summer Olympics will have Oregon ties. Private companies now continue this agricultural development work and look toward broader applications of grasses and other seed crops in environmental restoration projects across the Chinese landscape.

A significant recognition of the international activities and ties of the Department of Crop and Soil Science was the awarding of the OSU Distinguished Service Award to Dr. Weixing Cao, vice president of Nanjing University, during OSU's 2008 commencement ceremonies.

Exploring World Agriculture (co-listed as ANS, AREC, CSS and HORT 438) traveled to Australia, visiting Sydney, Melbourne, and Adelaide as well as extensive countryside tours during the Fall, 2008 term. Twenty students, five parents, the department head of Horticulture, a faculty member from Crop and Soil Science, and the College of Agricultural Sciences marketing specialist surveyed crop and livestock production systems in southeastern and southern Australia including history, culture, social, economic, environmental, and political issues.

Dave King, department head for **Extension and Experiment Station Communications**, was an invited lecturer in a nationwide lecture series sponsored by the Central Agricultural Broadcasting and Television School (CABTS) in Beijing in October 2007. The lecture, on technology-mediated learning, was viewed live via satellite by more than 5,700 people across China. Working within the American Distance Education Consortium (ADEC) of which Oregon State is a member, King negotiated a memorandum of understanding with CABTS which was signed in April. It calls for jointly sponsored faculty and technology specialist exchanges, including a technology and learning conference in Beijing in 2010. King also serves on an international advisory committee for the Global Learning Center at Zamorano University in Honduras.

Supporting the OSU Capital Campaign

With a total of \$10.5 million in gifts secured to the capital campaign, the College has achieved 175 percent of its 2007-2008 fiscal year fund-raising goal of \$6 million. Cumulatively, the College has raised \$29.3 million towards its \$36.5 million goal, or approximately 80 percent of the comprehensive Campaign Goal. These achievements are the result of work by a number of individuals. With **Todd Bastian**, OSU Foundation director of development, and **Jack Holpuch**, associate director of development, for the College of Agricultural Sciences, the dean, associate deans, and department heads made more than 200 personal donor visits during the period. In light of this success, it is likely that the College's goal will be met and exceeded.

Among the noteworthy achievements in the campaign are these:

- Donors have committed full funding for three faculty positions: The \$1 million N.B. (Nat) and Jacqueline Giustina Professorship in Turf Management, established in the Department of Horticulture; the \$1.25 million Banfield Professorship in Companion Animal Industries in the Department of Animal Sciences; and the \$1.5 million Bob and Phyllis Mace Watchable Wildlife Chair, established in the Department of Fisheries and Wildlife.

- Donors have committed more than the \$2 million goal for the OSU Wine Institute directorship; this is significant progress toward establishing the Institute. A position description for the directorship is being finalized.
- Fundraisers have identified more than \$600,000 in gifts to endow the Jungers Faculty Development and Research Fund for the Marine Mammal Institute.

Areas that need improvement

Refining the University's data aggregation and reporting model

As a large and complex college, Agricultural Sciences carries out its undergraduate and graduate academic programs in multiple locations and in creative collaborations with other colleges, honoring the University's intent to foster integrated, interdisciplinary education. Doing so requires investment, mostly of faculty time but other resources as well. In collecting, aggregating, and reporting information about academic productivity of the College of Agricultural Sciences, the University's data systems still under-report the College's work. This is an issue of long-standing (more than a decade) that has not been resolved systemically. Instead, data are corrected only on a term-by-term basis, and usually only after the College points out the need for re-calculation. This is an important matter deserving of systemic correction because these data often drive resource allocation decisions and evaluation of effectiveness. The College's next dean will likely choose to continue advocating for change in how these data are handled, in no small part because resolving the issue will support the University's objective of expanded interdisciplinary collaboration not only by this college but by others across the institution.

Anticipating the next generation of professors

From demographers, from sociologists, and from our own experience in attracting and recruiting young, early career faculty, we observe that the career models typical for Land Grant universities may no longer be adequate. If we are to ensure continuing intellectual capacity in the disciplines that relate to agriculture, food systems, natural resources, and environmental management, it appears that there may be a need for greater flexibility in employment and career development. For example, instead of seeing a faculty appointment as a 30-year commitment, younger candidates are expecting—even hoping—to move from institution to institution. Women candidates want to be certain they can enjoy both career *and* family. Some candidates are not particularly interested in tenure and do not see it as an attractive dimension of possible employment. Others would choose to work less than full time. These increasingly evident generational differences seem significant enough that the University may wish to convene some conversations to consider increased flexibility and innovative accommodations to help ensure OSU remains attractive to a broad range of highly qualified future faculty members.

Major recognition and awards

Faculty

College of Agricultural Sciences faculty and staff have earned **recognition from many sources**: departmental, College, University, professional associations, government agencies, and others. We are especially pleased to note the induction of **James Carrington, Botany and Plant Pathology**, as a fellow in the National Academy of Sciences, for his pioneering work on small RNA's.

Additional external recognition of College of Agricultural Sciences faculty this past year included:

Rich Adams, 2008 AAEEA Publication of Enduring Quality Award for "Global Climate Change and United States Agriculture."

Carl Schreck, Presidential Award from President George W. Bush for lifetime achievements in fisheries research and management.

Don Stevens, fellow, American Statistical Association for path-breaking research in the use of sampling in environmental statistics.

A complete list of awards, including achievements of classified staff and professional faculty, is published in *A Celebration of Talent and Accomplishment*, the printed program for the College's annual Faculty and Staff Day. Copies are available from the Office of the Dean.

Students

Wade Holman, Botany and Plant Pathology, and **Tammy Winfield, Bioresource Research**, received awards for 2008 from The Ernest and Pauline Jaworski Fund for Summer Research Experiences for Underserved Undergraduates in Plant Science. This fund, expanded this year by the Jaworskis, continues to provide summer support for deserving students.

Donald Lyons, Wildlife Science: Savery Outstanding Doctoral Student Award, recognized as an outstanding graduate student whose research benefits Oregon's agriculture and natural resources.

Christina Murphy, Fisheries and Wildlife Science: *Capital Press* Outstanding Senior in Agriculture at OSU Award, recognized for outstanding scholastic leadership and professional achievement.

Noah Strycker, Fisheries and Wildlife Science: Burlingham Undergraduate Student of Excellence Award, recognized for outstanding scholastic, leadership, and professional achievement.

Heidi Vogel, Fisheries Science: Savery Outstanding Masters Student Award, recognized as an outstanding graduate student whose research benefits Oregon's agriculture and natural resources.

2008-2009 Student Fulbright Awards

Three students in Fisheries and Wildlife have been awarded Fulbright Fellowships for the 2008-2009 academic year:

Seth White, doctoral student in **Fisheries Science**: Fulbright Award to Czech Republic to conduct research on "fish community dynamics in regulated rivers of the Morava basin."

Matt Hawkyard, master of science student in Fisheries Science: Fulbright Award to Norway's National Institute for Nutrition and Seafood Research in Bergen, to conduct research on enrichment of vitamins within Artemia brine shrimp for feed to marine larval fish.

Christina Murphy, undergraduate senior in Fisheries and Wildlife, international degree, and University Honors College: Fulbright Award to Chile to conduct research at the ECIM Marine Laboratory in Las Cruces.

Books by the College's faculty

Peg Herring, Extension and Experiment Station Communications

Herring, M. and S. Greene. 2007. *Forest of Time: A Century of Science at Wind River Experimental Forest*. Oregon State University Press, Corvallis, OR.

Judith Li, Fisheries and Wildlife

Li, J., et al. 2007. *To Harvest, To Hunt*. Oregon State University Press, Corvallis, OR.

Robert J. McGorin, Food Science and Technology

Cadwallader, K.R., M.A. Drake and R.J. McGorin, eds. 2007. *Flavor of Dairy Products*. American Chemical Society: Distributed by Oxford University Press, New York.

Jeffrey C. Miller, Rangeland Ecology and Management

Miller, J.C. 2007. *100 Butterflies and Moths: Portraits from the Tropical Rainforest of Costa Rica*. Belknap Press, Cambridge, MA.

Jay Pscheidt, Botany and Plant Pathology

Pscheidt, J.W. and Ocamb, C. M. Senior editors. 2007. *Pacific Northwest Plant Disease Management Handbook*. Oregon State University Extension Service. 628 pp.

Yanyun Zhao, Food Science and Technology

Zhao, Yanyun, ed. 2007 *Berry Fruit: Value-Added Products for Health Promotion*. CRC Press, Boca Raton FL.

Licenses support research with royalties

Two "Clearfield" wheat varieties are among OSU's top dollar-generating intellectual properties at this time. Developed in collaboration with BASF Corporation, they give Pacific Northwest growers new management tools to control grassy weeds, as they carry a patented, non-GMO, herbicide resistant trait. These varieties now occupy more than 300,000 acres in the Pacific Northwest and have returned more than \$1.1 million to OSU in seed royalties over the past three years. These funds are used to augment wheat research.

Crop and Soil Science began to license wheat and potato varieties developed by department plant breeders less than seven years ago. The licenses are designed to meet all legal requirements and to minimize grower effort and cost to obtain and maintain a license. Licenses are built on trust among the groups and self-policing of license terms by all group members. Crop and Soil Science has also worked with the potato commissions in the three Pacific Northwest states and the USDA Agricultural Research Service to create a non-profit Potato Variety Management Institute. Still in its infancy, the Institute has

gained a national reputation for marketing and licensing innovations. In the near term, it should begin returning royalties to the three Pacific Northwest states to further research efforts.

Results and Outcomes

Performance on college-level metrics

Please see Appendix A for information provided by the Institutional Research office.

Leveraging resources

Initiatives to leverage state resources

The single most important factor for the College of Agricultural Sciences in leveraging state resources comes down to clearly defining state needs, hiring highly competent faculty, and supporting their pursuit of outside research funding. The College's success in securing grant funding continues. Current data show that the ratio of external funds (in the Oregon Agricultural Experiment Station) to funds appropriated by the legislature is about 1.5 to 1; that is, for every state dollar Oregon invests, the College generates another \$1.50 in external funding. Once again, the College of Agricultural Sciences secured more new external research grants than any other college. The College's research awards for 2007-2008 were almost **\$38 million**. At \$8.7 million in external funding for 2007-2008, **Fisheries and Wildlife** heads the list of ten College units developing more than \$1 million in external funding each.

The College makes financial contributions for the greater good of the University, which include annual recurring funding for veterinary medicine research at just less than \$800,000 annually and health and human science research at more than \$320,000. The College also provides annual funding to the College of Forestry, the Center for Genome Research and Biocomputing, and the Department of Zoology. Areas of support from Education and General funds include the Natural Resources undergraduate program and the OSU Agriculture Program at Eastern Oregon University. Within the recent year or so, the College has provided more than \$200,000 of support for other programs and needs.¹

The College continues to support the Provost's six strategic initiatives. This support includes funding commitments for new faculty members in three of the six areas and broad support for all of the initiatives.

¹ These funds are dedicated toward such things as the Sloan Foundation Grant support, the National Institute of Environmental Health Sciences Training Grant support, the Water Resources Graduate Program, the Molecular and Cellular Biology Graduate Program, the Ecosystem Informatics Integrative Graduate Education and Research Traineeship, the Laboratory Animal Resources Center, acquisition of advanced instrumentation (e.g., mass spectrometry, electron microscopy), biotechnology outreach, the Banner web training project, and culvert replacement.

Initiatives to improve administrative efficiencies

Improving efficiency and accountability with information exchange

To improve efficiency and ensure accountability, the College has worked diligently to clarify roles, responsibilities, and policies. For example, the Oregon University System Internal Audit Division commended a College-specific policy related to the sale of agricultural commodities. In collaboration with personnel from the Research Office and Finance and Administration, the College conducts regular information sessions with administrative personnel. The College also conducts unit specific training sessions. This fall, a workshop will be held for administrative personnel located at the branch experiment stations. In addition, the College actively participates in the University's business center planning process.

Improving federal reporting and accountability with big picture thinking

The Oregon Agricultural Experiment Station has moved to a programmatic or thematic approach to organizing and managing the projects conducted by its faculty under USDA formula grant funding. A desire to demonstrate broader societal impacts and to provide more significant stories about the role experimental station faculty fill with respect to important issues and themes in agriculture and natural resources, in part motivated this move. In addition, the USDA had asked its Land Grant partners to submit their research plans under a limited number of program plans. In the past, faculty formulated individual projects with no indication as to how their projects interrelated to work done by other faculty. It was difficult demonstrate cumulative outcome on such a variety of topics.

The Oregon Agricultural Experiment Station developed a two-step planning and reporting reorganization process. In the first step, unit leaders clustered the 200-plus individual faculty projects under a limited number of overarching goals, resulting in 35 "megaprojects." The second phase of the reorganization placed the resulting "megaprojects" under six strategic programs based on the College of Agricultural Sciences' four strategic goals and two special focus areas. This alignment process allows the College to better direct faculty towards attainment of the College's strategic goals. In addition, the Experiment Station is now better able to tie strategic efforts to USDA's strategic plan.

In addition to more effective tracking of programmatic efforts, the Experiment Station expects to provide more insightful reporting about thematic efforts. This reorganization facilitates linkages among related efforts and thematic projects, and will encourage formation of interdisciplinary collaboration. The latter is increasingly desirable in securing competitive funding.

Videoconferencing: Improving efficiency and reducing the carbon footprint

No college at OSU has more faculty and staff assigned to permanent duty stations distant from the campus. In earlier times, activities such as planning, coordination, staff development, committee work, and the like meant significant travel commitments. The College has significantly invested in equipping field offices, on-campus departments, and the College-level administration with videoconferencing capabilities, a technology that has caught on among its faculty, staff, and students. For example:

- Departments with faculty both on- and off-campus now routinely arrange scholarly seminars as videoconferences so distant students, faculty, and staff may participate.
- Search committees and other University-service meetings that once required distant members to drive to Corvallis now are conducted by videoconference.

- A new Dean’s Conference Room, equipped with state-of-the-art videoconferencing equipment, is heavily booked for multi-site conferences, meetings, conversations, and occasional student interaction such as a recent student-faculty interaction between Corvallis and Chile.
- Regular monthly College of Agricultural Sciences Administrators’ Meetings that once required branch experiment station superintendents and some Extension staff chairs to commute every month to Corvallis—from as far away as Ontario, Burns, and Klamath Falls—have become multi-site videoconferences.

Although the College has not undertaken a formal audit of savings, such a review would take into consideration the opportunity cost of having a senior administrator spend many hours at the wheel of a car, the financial cost of per diem and \$4 per gallon gasoline, and the difficulties of arranging meetings to accommodate diverse schedules of geographically scattered participants. The new “videoconferencing ethic” and the tools to support it have caught on in the College.

Appendix A: Institutional metrics for the College

These metrics will be included in the next version of this report.

Source:
Office of the Dean
College of Agricultural Sciences
Oregon State University
Saved as CASProvostRept08v14.doc