

College of Agricultural Sciences

Oregon State University

September 2012

Introduction

The College of Agricultural Sciences, Agricultural Experiment Station, and Extension Agricultural Sciences and Natural Resources Extension Program are integral to Oregon State University's quest to be a top-tier 21st century Land Grant university. The College contributes to the University's Phase II Strategic Plan with its emphasis on three Signature Areas of Distinction: Advancing the Science of Sustainable Earth Ecosystems; Improving Human Health and Wellness; and Promoting Economic Growth and Social Progress. With continuing transformation, the trajectory is one of even greater impact in these areas by contributing to the education of graduates competitive in the global economy, supporting a continuous search for and sharing of new knowledge and solutions to global challenges, and maintaining a rigorous emphasis on academic excellence. In this 2012 report from the dean of the College of Agricultural Sciences to the provost of Oregon State University, we provide selected examples to illustrate just a few of the many ways in which we continue our long history of contribution to the University's strategic plan.

In a major leadership change during the year, President Barack Obama named Sonny Ramaswamy, then-dean of the College of Agricultural Sciences, to be the director of the National Institute of Food and Agriculture (NIFA) in Washington, DC. NIFA is the lead agency within the U.S. Department of Agriculture that supports research, education, and extension programs among the nation's Land Grant universities and partner organizations. His position became effective on May 1, 2012. Dan Arp was appointed dean of the College of Agricultural Sciences and director of the Oregon Agricultural Experiment Station, also effective May 1, 2012.

Key initiatives undertaken and noteworthy outcomes achieved

Student engagement and success

In combined effort, the College of Agricultural Sciences, Agricultural Experiment Station and its partner colleges, and Extension Agricultural Sciences and Natural Resources Extension Program provide unmatched experiential learning opportunities for students. While extending the outcomes of research discoveries to advance economic and social well being for Oregon and beyond, the College contributes to the University's vision that every undergraduate student has at least one experiential learning opportunity. College faculty, as they enable the three Land-Grant missions, provide opportunities for outstanding experiences in the form of undergraduate research, international experiences, internships, and service learning. The College develops contributing members of society by embracing hallmarks of quality education: technical and experiential skills; critical thinking, communication, and language skills; teamwork and problem-solving skills; professionalism; and the ability to live and work in a diverse society. A few of many possible examples follow.

Relevance

Relevance is evidenced by increasing numbers of out of state, minority, nontraditional, and Ecampus students coming in to the College during a time when the average SAT score is increasing. For example, overall enrollment in the College increased 15.5 percent between 2011 and 2012. The increased enrollment reflects increasing diversity within the College and an increasing quality of student preparation and promise for success. Oregon State University is one of the few universities offering traditional agriculture courses online. There has been a sharp increase in the number of

students enrolled in the on-line bachelors degree programs in several units including Agricultural Education and General Agriculture, Fisheries and Wildlife, and Horticulture. College offerings are attracting a geographically dispersed audience, who are willing to practice the self-discipline necessary to improve themselves professionally.

Technical and experiential skills

Students in the College of Agricultural Sciences are among the University's most engaged in experiential learning. Many participate each year in undergraduate research in laboratories on the OSU campus as well as others across the state and even internationally. Through course work and career planning, students also see the value in hands-on experiences offered through internships. Consequently, with help and support of faculty and advisors, students seek—and find—internships that are both domestic and international.

College faculty are developing vital educational components for a nationally important project that is part of the USDA Agriculture and Food Research Initiative (AFRI) called *System for Advanced Biofuels Production from Woody Biomass in the Pacific Northwest*. In the College of Agricultural Sciences, faculty are designing and establishing educational programs to create a critical mass of well-trained growers and processors of woody biomass for fuel production in the region. Their efforts involve the establishment of an undergraduate bioenergy minor, a Professional Science Masters program, and a pre-college program for Science and Mathematics Initiative for Learning Enhancement (SMILE) after-school science clubs and summer bridge programs. The overall project is in collaboration with other regional universities and commercial growers, refiners, and distributors of biofuels.

Students enrolling in SOIL 205 Introduction to Soil Science are required to complete a collaborative service learning project. Group organization and dynamics are included in the learning outcomes, and students create a blog about the project. Projects themselves are highly diverse, and many have a community benefit such as planting a home vegetable garden for a household with disabled members or providing science enrichment to local elementary school students. Others provide service to the College, such as a soil pit maintenance project. Soil pits are integral to the soil science curriculum.

Critical thinking, communication, and language skills

The first cohort of a new Leadership Academy completed training in June 2012. The Academy, initiated and administered by the Agricultural Education and General Agriculture Program, seeks to promote the competitiveness of Agricultural Sciences and Forestry students in the workplace. Its creation was inspired by feedback from employers indicating that College graduates have impeccable technical skills, but that most would benefit from additional development of leadership traits. Over the course of the year, Academy fellows sharpened their ability to lead, think critically, communicate, and work collaboratively. The Academy's hallmark is a one-on-one mentoring component of students by faculty.

Research and its impact

“... [R]esearch must improve fundamental understanding, create solutions to global challenges, and address emerging opportunities while aligning with funding sources.”¹ The College's research agenda emphasizes relevance, integration, collaboration, leadership, and access. The College and the Agricultural Experiment Station and partner colleges are well

¹ From the Oregon State University Research Agenda:

<http://blogs.oregonstate.edu/researchupdate/files/2011/09/ResearchAgenda10-19-11.pdf>

positioned to play a core role in addressing the three fundamental, integrative guiding questions in the University's research agenda: *How do natural systems work, and how can we live sustainably within them? What factors and systems influence and promote health, wellness, and long-term quality of life? What fundamental understanding, discoveries, and solutions are needed to advance economic and social well being?*

Living sustainably within the framework of natural systems

Accurately predicting marine productivity and global warming. Phytoplankton are the ultimate basis for almost all ocean life and the major fisheries. Fundamental research from the Department of Botany and Plant Pathology, with the support of NASA funding, sheds new light on ocean productivity and provides new knowledge to predict oceanic response to further global warming. One expected result of global warming is greater thermal stratification of the oceans, which could lead to reduced phytoplankton growth and less overall ocean productivity. Other effects could be seen in ocean carbon balances; an accurate understanding of the phenomenon is needed for improved global climate models.

Fundamental research supports bioenergy development. Fundamental research effort to identify genes that permit some poplar trees to grow in land too high in salt and too low in water to support food crop production is advancing in the Center for Genome Research and Biocomputing with \$1.4 million in federal support. The trees have been identified as likely biomass sources for bioenergy applications.

Research promotes survival of native salmon. Coastal Oregon Marine Experiment Station researchers were able to demonstrate that a reduction of life history diversity appears to be occurring among Chinook salmon relative to dam construction. This information is integral to establishing realistic recovery and management plans for Columbia River Chinook stocks, several of which are listed under the Endangered Species Act. Other work with an emphasis on hatcheries stocks by Department of Fisheries and Wildlife faculty have found:

- virtually all of the downstream migrating smolt mortalities occur in the very short estuarine section of coastal rivers;
- wild stocks of steelhead persist in the Alsea River, despite extensive stocking of hatchery fish over many decades;
- initial egg size determines growth rate and size after hatching and egg size tends to be smaller in hatchery fish; and
- wild and hatchery steelhead do not differ significantly in the characteristics or success of their spawning behavior.

Modeling tools predict impacts of dam removal. A research group in the Department of Biological and Ecological Engineering is studying the removal of seven dams in Oregon. This project has led to the development of new models for predicting sediment processing following small- and medium-sized dam removals. Other outputs include new partnerships outside academia, support for project design, and investigation of the current and alternative approaches to dam operations. Models are being developed for the Santiam, the Sacramento, and the Willamette Rivers. Researchers have described the response of riverine channels to barrier removal; data have been used to link biotic and abiotic responses, to model system behavior, and to investigate monitoring approaches.

Portland Harbor Partnership engages public awareness of Superfund site. Through the Department of Environmental and Molecular Toxicology, College faculty provide a Portland Harbor Partnership with expertise in developing educational materials, developing and delivering presentations, and developing informational modules based on findings at the Portland Harbor Superfund site. They also contribute to grass-roots efforts to reach under-represented and diverse stakeholder audiences. This is a public-private partnership working in cooperation with Portland State University and OSU to support broad outreach and to increase the stakeholder voice in the future of the harbor.

Grazing management protects wildlife habitat on the Zumwalt Prairie. In collaboration with The Nature Conservancy, faculty at the Eastern Oregon Agricultural Research Center in Union and at the Hermiston Agricultural Research and Extension Center are studying biodiversity and ecosystem functions. Their work is providing information that influences how livestock and wildlife are managed on the Zumwalt Prairie of northeastern Oregon. Producers, managers, and environmental nonprofit groups collaborate to apply this new knowledge of the consequences of grazing regimes on diversity and community composition of plants, invertebrates, birds, food web dynamics, and pollination services. This information supports development of sustainable grazing practices, minimizes negative ecological effect, and maximizes economic return to the producers.

Improved irrigation practices enhance groundwater remediation. Groundwater in eastern Oregon's Malheur County is contaminated with nitrate of agronomic origin. Faculty at the Malheur Experiment Station sought options to increase the efficiency of nitrogen (N) fertilizer and irrigation used in the production of sugar beets, potatoes, wheat, and onions. As a result, growers now apply less N to onions and potatoes, timing the application for greater efficiency of uptake by the crops. Faculty have demonstrated that onions grown under drip irrigation display improved yield and quality with reduced inputs and hence reduced costs and potential for water quality degradation. These practices have been widely adopted by onion growers locally and in other production regions.

Gray whales benefit from prediction of whale-human interactions. A multi-agency team of scientists, including faculty from the Department of Fisheries and Wildlife, has launched a WhaleWatch project to reduce the number of gray whales killed from ship strikes and entanglement in fishing nets by identifying high-risk areas along the West Coast of the United States. Gray whales migrate more than 10,000 miles each year between feeding grounds and breeding grounds. Identifying the seasonal trends and the geographical movement of whales may help policymakers find ways to better protect the whales. Data from tagging and satellite monitoring of more than 300 whales, conducted by researchers at the College's Marine Mammal Institute, synthesized with environmental data and human activities permit project members to predict when and under which conditions whales are most likely to be injured or killed.

Oil spill impacts on the Gulf of Mexico continue. Passive sampling devices developed by faculty in the Department of Environmental and Molecular Toxicology are monitoring the bioavailable concentration of polyaromatic hydrocarbons (PAHs) in the Gulf of Mexico following the Deepwater Horizon disaster. Traces of oil found in zooplankton suggest the availability of oil compounds to work their way up the food chain, despite reports indicating non-detectable levels of petroleum in shellfish. Fish and shrimp feed on zooplankton and introduce contamination and pollution to the larger marine animals that prey on them. Baseline data obtained at all study sites allow direct before-and-after comparisons of contamination levels. Although total PAHs at three of the four sites have returned to pre-spill levels, the distribution of 33 individual PAH concentrations are not the same as before the disaster. Such shifts in PAH composition are important because PAHs vary in toxicity. Closely related research is also being carried out at the Coastal Oregon Marine Experiment Station, Hatfield Marine Science Center, to determine the toxicity of oil and dispersant from the Gulf Oil spill for a wide range of marine invertebrates, including oysters and clams. Results indicate that test species are more affected by oil in the presence of dispersant than without. A larger collaborative effort teams OSU's departments of Environmental and Molecular Toxicology, Fisheries and Wildlife, and Animal and Rangeland Sciences, the Coastal Oregon Marine Experiment Station, and the Veterinary Diagnostics Laboratory, with Florida International University and the University of Delaware. Together, they are evaluating toxicity of waters of the Gulf of Mexico during and after the spill to assess possible effects on marine species and shoreline-dwelling birds. This research is providing industry and regulatory scientists with information about short- and long-term effects associated with hydrocarbon exposures.

Living to ensure health, wellness, and quality of life

Energy balance research provides guidelines for healthy lifestyles. College faculty from the departments of Horticulture and Food Science and Technology, and the Food Innovation Center Experiment Station are collaborating with researchers in the College of Health and Human Performance to investigate an energy balance between dietary intake and physical activity. Their work is aimed at finding dietary and activity balance that will permit children, young adults, adults, families, and communities to achieve and maintain healthy weights through physical activity rather than through dieting, and to prevent chronic disease related to obesity. This work is integrated into the training of professionals working with communities (e.g. Extension faculty) and into government education programs for low-income families and for schools. The ultimate goal of this work is the development of strategies for incorporating an integrated energy balance approach into the nutrition and physical activity educational programs funded by federal or state agencies.

Barley foods reduce incidence of disease linked to lifestyle. Department of Crop and Soil Science and Food Science and Technology collaborators are developing barley varieties and foods, and working with private industry to deliver a range of barley-based ingredients and mixes. Products are being delivered to the marketplace, and to Food for Lane County and the Oregon Food Bank. Barley is the world's oldest grain and a key ingredient of whole grain diets that can help to manage the risks of obesity, Type II diabetes, and coronary heart disease.

Advancing economic and social well being

Agricultural production and trade alleviate shock of climate change. A model developed by faculty in the Department of Agricultural and Resource Economics, linking resource endowments, agricultural productivity, geography, and other key determinants of trade contributes to an understanding of how climate change will influence cropping decisions, trade, and effects on producers and consumers. Countries use international relations to alleviate the effects of a shock to their natural resource endowment, using trade adjustments with other nations as tools for compensation.

In related work, researchers in the Department of Agricultural and Resource Economics are leading a global collaboration among multiple crop and agricultural economics modeling groups to build an ensemble approach to agricultural climate impact and adaptation modeling and assessment. The work compares existing agronomic models with future climate change conditions. Regional trainings, with the mission to develop, train and work with the economics component of regional impact assessment teams, will be held throughout India and sub-Saharan Africa in 2012-13. Similar regional trainings were held in Latin America in 2011.

Collaboration supports rural communities as agricultural policy evolves. With assistance from the USDA, agricultural economists from OSU and UC Davis are creating a collaborative Partnership for Agricultural and Resource Policy Research Center. The Center's researchers are assessing the impacts of the Farm Bill on agricultural economies, rural communities, the environment, and consumer access to healthy, affordable food and nutrition. The two institutions are national leaders in policy research relating to agricultural and resource economics; the Center was created by economists in the Department of Agricultural and Resource Economics with the support of the USDA.

Organic vegetable varieties developed for farm sustainability. A national network of organic vegetable breeders, led by a researcher in the Department of Horticulture, are working collaboratively with regional growers to develop vegetable varieties adapted to organic systems, while offering disease resistance, nutritional and flavor quality, and productivity traits crucial to contemporary markets. Seed companies, producers, and consumers now have increased knowledge of vegetable breeding and field trials. A recent survey of Oregon farmer-participants indicated about 63 percent of respondents would change the varieties they grow based on this research. Network researchers are now sought after by

seed companies for collaborations; the work has attracted strong interest and involvement from independent seed growers and breeders.

New hazelnut varieties protect diverse agricultural enterprises. The 2010 release of hazelnut cultivar Jefferson by the Department of Horticulture has saved a specialty crop industry and made Oregon hazelnut production economically sustainable once again. Jefferson is fully resistant to the fungal Eastern Filbert Blight; its release has resulted in the establishment of about 5,000 acres, the first new hazelnut orchards to be planted since 1970. Hazelnuts provide an alternative enterprise to Willamette Valley's grass seed growers, who continue to suffer from stagnant markets since the fall of the housing market in 2008. Commercial hazelnut production outside the Willamette Valley is virtually unknown in the United States.

Alternative management of post-harvest decay reduces wastage and economic loss. Researchers at the Southern Oregon Research and Extension Center evaluated strategies to mitigate the consequences of delayed application of postharvest fungicides to pears. Fungicides registered for postharvest application during fruit packing can be effective in protecting stored fruit from fungal infection. However, in commercial production districts a large volume of fruit is harvested in a relatively short period of time, requiring a delay up to several months before all fruit are treated and packed, making postharvest fungicide application of limited effectiveness for much of the crop. Many pear producers have introduced alternative treatments based on these findings. Decay during cold storage of untreated fruit results in economic losses of about \$2.5 million region-wide and threatens the sustainability of the pear enterprise.

Findings mitigate loss in broiler production. Research in the Department of Animal and Rangeland Sciences will have important practical implications for the \$38 billion U.S. poultry industry. The work seeks to reduce mortality among the 5 percent of chicks (almost half a billion) that do not survive the first week post-hatch. It will increase understanding of the role of essential fatty acid metabolism in pre- and post-hatch chicks to enhance chick growth, health, and viability. Preliminary results indicate that early exposure to certain essential fatty acids can have long-lasting effects on broiler health, preventing or reducing metabolic disorders and heart-related conditions that are the major cause of death or underperformance in broilers.

Outreach and engagement including international-level activities

Stephen Machado, associate professor, Columbia Basin Agricultural Research Center, is participating in a network of African-born scientists to build capacity in African communities through research, extension, and teaching. Civil unrest, political dysfunction, or the economic collapse of their countries has driven thousands of African scientists to other continents for work, resulting in a brain drain in Africa. With a grant from the Bill and Melinda Gates Foundation, Machado and 17 other African-born scientists across the United States and Canada have formed an *Association of African Agricultural Professionals in the Diaspora* to build capacity in their home countries. "We are the sons and daughters of Africa and we can make a difference. We want African farmers to make a living, not just subsist on hand-outs. They need technology, business skills, and access to things that we know how to teach." Machado notes that these scientists, with their roots in Africa, will involve the African people so they own the projects and sustain them into the future.

Food insecurity is one of Oregon's gravest issues. Faculty and students from the College were among the developers and participants in a well-attended 2012 Food Security Summit. The event was hosted by an interdisciplinary team at OSU. The conference drew together array of organizations and agencies working collaboratively within a framework created

at a 2010 Food Security Summit and sought to identify practical solutions to the economic and social structural conditions—difficult to reverse—that contribute to hunger in Oregon, and to inform academic research agendas.

In other related food-security activities, Extension faculty are active in these community outreach efforts:

For many young people today, farming is a cause. Their enthusiasm rivals that of young software start-ups of the 1990s. Their dedication, interest, and enthusiasm for farming have made it a social movement. The nation will experience a large transfer of farmland in the next decades, creating a need for new farmers to contribute to the nation's food security. In gardens and classrooms across Oregon, the Extension Agricultural Sciences and Natural Resources Program is helping people learn to farm, including through programs designed especially for many segments of a new farmer population:

- A program developed by OSU Small Farms Program faculty, *Growing Farms: Successful Whole Farm Management*, provides 8 weeks of training on developing and managing a farm business.
- Faculty at the Southern Oregon Research and Extension Center have developed *Growing Agripreneurs*. This program guides beginning farmers through a season of production and marketing activity, offers hands on farming experience, and complements the farm management training offered in *Growing Farms*.
- *A Beginning Urban Farmer Apprenticeship*, a partnership between OSU Extension and Multnomah County, provides in-depth training through hands-on farming, classes, field trips, and supervised internships to provide the skills needed to design and manage urban farms and market gardens.
- Each year, several hundred farmers, novice and seasoned alike, gather at OSU's Small Farms Conference for a full day of workshops, seminars, and networking. The 2012 Small Farms Conference attracted more than 800 participants, breaking all prior registration records. Portions of the program were translated into Spanish.
- For nearly 20 years, the OSU Small Farms program has supported the growth of small farms in Oregon; the strength of its gatherings offer hope to create opportunities for economic development and diversity in agriculture, and to feed the future.

Other notable outreach activities

- The OSU-branded identity template has been applied to the web presences for most of the Branch Experiment Stations in the last year. Progress continues on applying the OSU branded identity to our departments, programs and service units websites. The Coastal Oregon Marine Experiment Station² is among the College units sporting the OSU-branded identity on its web site.
- A *Lepidoptera* Wing Pattern Identification System provides identification of butterflies based on user-uploaded digital photos. The site³ includes a step-by-step method for accessing the information, provides images, and information about specific members of the *Lepidoptera* genus.
- *AgTools*TM Academy workshops, developed by faculty in the Department of Agricultural and Resource Economics, help tree fruit and nut growers understand the financial principles behind orchard renewal, technology adoption, and permit them to match funding for these activities to the productive life of the orchard investment. Before they were introduced to the planning tools offered by *AgTools*TM most orchard owners surveyed had no plans to replace orchards in a timely manner. By excluding themselves from the benefits of new techniques and technologies that

² <http://marineresearch.oregonstate.edu/>

³ <http://ipmnet.org/LepID/Default.aspx>

are introduced in the Academy workshops, they risked financial liquidity, solvency and profitability. Using case studies, the workshops demonstrate the character of decision making possible with *AgTools™*, which can then be adapted to any commodity.

Community and diversity enhancement initiatives

The College demonstrates a strong commitment to diversity. Among affiliated student organizations, the OSU chapter of Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) received two campus-wide awards from the Meso American Student Association and the Movimiento Estudiantil Chicanos de Aztlan organizations. One award, Best Event, was for MANRRS providing assistance, helping organize, and sponsoring 'Mi Familia' weekend at OSU for Latino and Hispanic families. MANRRS also earned the Best Student Organization award from the same groups. Both are OSU Latino student organizations. The OSU MANRRS chapter won the National Chapter of the Year Award in 2009 and 2011 and received second place in 2012. The current national MANRRS undergraduate president is an OSU student and the first native American to hold the position. Nationally, there are 70 university chapters across the country dedicated to preparing membership for challenging and rewarding careers in agricultural and related sciences.

With College support, faculty in the Department of Fisheries and Wildlife and the Bioresource Research Program revived the OSU Chapter of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) in the spring of 2012. The revitalized chapter currently includes 20 undergraduate and 10 graduate student members, along with a dozen university faculty members serving on the chapter's advisory board. SACNAS is a society of scientists dedicated to fostering the success of Hispanic, Chicano, and Native American scientists—from college students to professionals—to attain advanced degrees, career success, and positions of leadership in science.

Other initiatives

The College announced selection of a new head for the Department of Animal and Rangeland Sciences in 2011. John Killefer joined the faculty after serving at the University of Illinois at Urbana-Champaign. The Department of Animal and Rangeland Sciences resulted from a merger of the departments of Animal Sciences and Rangeland Ecology and Management. Killefer succeeded Jim Males in Animal Sciences, and Mike Borman in Rangeland Ecology and Management; both continue as faculty members at OSU.

The College has hired a research program administrator who participates directly in the development and submission of research proposals at the \$1 million level and above. To date, 11 multi-million dollar, interdisciplinary, multi-institutional proposal applications totaling more than \$74 million in project funds have been submitted. In addition, the research program administrator has provided substantial advice to 125 proposal applications to more than 60 different programs including federal, state, foundation and private organizations. Other activities have included interactive Cayuse on-line proposal development system training sessions for College faculty on campus and in the field, development and distribution of bi-weekly funding opportunity announcements, and development of templates to assist in routine aspects of proposal development. In a collaborative action, the Agricultural Sciences and Marine Sciences Business Center (AMBC) has assigned an experienced research accountant to work closely with the research program administrator to ensure that the financial aspects of the proposal submission are accurate.

Status of key initiatives undertaken

What worked

The College's philanthropic goal of \$8 million and its "stretch" goal of \$9 million have both been exceeded by successfully fundraising more than \$9.9 million this year. In addition, the College received \$6.4 million in private grants thus bringing the total fundraising efforts for fiscal year 2012 to more than \$16.3 million. This brings the College's development efforts to more than \$87 million raised toward a \$100 million goal for the *Campaign for OSU*.

A bioluminescence imager has been purchased with OSU Research Equipment Reserve Fund support and with contributions from several departments and colleges, including the College of Agricultural Sciences. Animal imaging techniques are an important component of biomedical research, aid in understanding basic biological processes, and enable observation of therapeutic interventions. This fundamental tool allows repeated imaging of laboratory animals without harm. The technology has multiple applications, such as measuring the effect of interventions on the growth of tumors in mice. This shared resource is housed in the Linus Pauling Science Center.

Areas for improvement

The University's difficulty in routinely and automatically assigning credit to the instructor(s) involved in cross-unit collaborations in teaching and supervision of students continues to be a disincentive to the development of courses taught within or across divisions. In the current paradigm, student credit hours are credited to the organizational code of the course. It should be possible to assign those student credit hours to the academic homes of faculty who actually teach the courses. At this time, calculation and transfer of student credit hours must be done manually, creating difficulties in confirming whether the transfer has actually occurred. This issue is particularly relevant to the College given our participation in several interdisciplinary programs.

The Graduate School has made significant progress in identifying graduate students according to major professor and providing that information to the units involved. This has allowed departments to readily have a full count of the graduate students associated with that unit for research and office space allocations. It is sound reasoning and advantageous to faculty and students throughout the University to resolve this well-recognized and long-discussed issue.

Major barriers

- Dramatically increasing undergraduate enrollment without concomitant funding of teaching FTE.
- Although some branch stations have enacted a 25 percent local funding initiative, others continue to adapt the model to fit their locales. In the short term, securing adequate resources for the Agricultural Experiment Station is uncertain.
- Owing to deferred maintenance, the current state of the economy, and lack of funds for research infrastructure, we conduct 21st century science in 19th and 20th century facilities.

Despite barriers and the challenge of limited resources, the College continues to advance with optimism, and has maintained a notable performance in securing extramural funding, exceeding \$50 million in new awards for a third straight year.

Major faculty and student awards

The College maintains lists of faculty, staff, and student awards on its web site under the “Our Best” tab. For a sampling of major awards, please see Appendix 1.

Initiatives to leverage resources and introduce efficiencies

Principal base resources for the College of Agricultural Sciences are state funds directed to the Oregon Agricultural Experiment Station for its research mission and to the Agricultural Sciences and Natural Resources Extension Program through the OSU Extension Service. Secondary base resources are federal formula grants such as Hatch and Smith-Lever. Deteriorating State support for the Experiment Station has been offset slightly by a small increase in Hatch Act funds during the current federal fiscal year. These declines further underscore the need for extramural grants and contracts—as well as private support—to supplement and enhance base funding. One of the Experiment Station’s state performance metrics is external funds leveraged per dollar of state funding. In fiscal year 2012, this metric continued at a record pace of 1 to 2.5 as \$25.4 million in state appropriations were leveraged by faculty to generate \$53.4 million in external fund expenditures.

Conforming to the University’s strategic plan, accommodating the learning goals for graduates and addressing two of the signature areas of distinction within the University’s strategic plan, the Eastern Oregon Agricultural Research Center at Union Oregon and the OSU Agriculture Program at Eastern Oregon University now function as an integrated unit for priority staffing, budgets, and planning activities.

The Oregon Wheat Commission supports research in the College of Agricultural Sciences ranging from small, individual projects addressing specific short-term needs to on-going, comprehensive program support. These funds provide salaries for summer workers and technicians, equipment, supplies and services. The leadership at the Columbia Basin Agricultural Research Center began working with the Oregon Wheat Commission in 2010 to seek base funding support. Since the beginning of Fiscal 2011, the Wheat Commission has allocated \$300,000 per year to ensure the capacity for Oregon wheat research. Two-thirds of this sum allows Center leadership to maintain basic infrastructure and critical inputs in support of the traditional research the Commission has always funded. The balance is distributed among other branch stations that work on cereals, and the Department of Crop and Soil Science. The Oregon Potato Commission is using a similar statewide approach in support of research and extension programs. This story is repeated throughout the state as branch experiment stations, local Extension offices and other programs with regional or statewide reach access multiple financial tools to provide uninterrupted service to local stakeholders.

Appendix 1: Major faculty and student awards

Faculty

- Bob Anthony, Fisheries and Wildlife, was named a fellow of the Wildlife Society.
- John Antle, Agricultural and Resource Economics, was named a fellow of Resources for the Future and was awarded a Quality of Research Discovery Award by the Agricultural and Applied Economics Association.
- Anita Azarenko, Horticulture, was named a fellow of the American Society for Horticultural Science.
- Scott Baker, Fisheries and Wildlife, was elected U.S. Scientific Delegate to the Scientific Committee of the International Whaling Commission. He also has been named one of four 2011 Pew Fellows in Marine Conservation.
- Dan Ball, Crop and Soil Science, was named a fellow of the Western Society of Weed Science.
- Rob Chitwood, Fisheries and Wildlife, has been recognized by the University with its OSU Exemplary Employee award.
- Lynda Ciuffetti, Botany and Plant Pathology, was named a fellow of the American Association for the Advancement of Science.
- Dan Edge, Fisheries and Wildlife, was awarded the Excellence in Teaching Award by the University Professional and Continuing Education Association.
- Susan Hanna, Agricultural and Resource Economics, was awarded a Distinguished Service Award by the International Institute for Fisheries Economics and Trade.
- David Hannaway, Crop and Soil Science, has been named a Fulbright Distinguished Chair, China, recipient.
- Stacey Harper, Environmental and Molecular Toxicology, was selected to receive research funding as part of the National Institute of Environmental Health Sciences Outstanding New Environmental Scientist program.
- John Hays, Environmental and Molecular Toxicology, was named a fellow of the American Association for Advancement of Science.
- Paul Jepson and the Integrated Plant Protection Center were selected as a recipient for the International IPM Award of Recognition at the 7th International IPM Congress.
- Dustin Johnson, Animal and Rangeland Sciences, was named 2012 Outstanding Young Range Professional by the Society for Range Management.
- Kenneth Johnson, Botany and Plant Pathology, has been named a fellow of the American Phytopathological Society.
- Michelle Kutzler, Animal and Rangeland Sciences, was selected by the Association for Women Veterinarians as recipient of its Judith Spurling Blue Ribbon Award for Service.
- Bob Lackey and Hiram Li, Fisheries and Wildlife, each was named 2012 Emmeline Moore Prize winner to recognize Society members who promote diversity within the Society.
- Cindy Lederer, Food Science and Technology, has been selected as a recipient of the 2012 Kroger Partnership Award recognizing “above and beyond” service.
- Juyun Lim, Food Science and Technology, was selected as the 2012 recipient of the American Chemical Society Moskowitz Jacobs Award for Research Excellence.
- Shawn Mehlenbacher, Horticulture, was awarded the Wilder Medal from the American Pomological Society.
- David Noakes, Fisheries and Wildlife, received the American Fisheries Society’s Award of Excellence.
- Melodie Putnam, Botany and Plant Pathology, received the Distinguished Service Award of the Pacific Division, American Phytopathological Society.
- Sujaya Rao, Crop and Soil Science, was chosen for a Fulbright award to Ecuador.
- Andrew Ross, Food Science and Technology, received the 2012 American Association of Cereal Chemists International Excellence in Teaching award.
- Dana Sanchez and Guillermo Giannico, Fisheries and Wildlife, received the OSU Outreach and Engagement Vice Provost Award for Excellence (Diversity) Award
- Carl Schreck, Fisheries and Wildlife, received the Excellence in Fish Physiology award from the Fisheries Society.
- Tom Shellhammer, Food Science and Technology, was named a fellow of the Institute of Food Technologists.
- Greg Thompson, Agricultural Education and General Agriculture Program, has been elected 2012 president of the American Association of Agricultural Education.
- Desiree Derrick Tullos, Biological and Ecological Engineering, is one of four OSU faculty awarded Fullbright Fellowships for 2011-2012. She will be conducting research at the National Cheng Kung University in Tainan, Taiwan.

- Jonathan Velez, Agricultural Education and General Agriculture Program, received the Distinguished Research Manuscript Award from the National Agricultural Education Research Conference.
- Vaughn Walton, Horticulture, and Silvia Rondon, Crop and Soil Science, have been named to receive the Excellence in Integrated Pest Management Award, the team award, and the Excellence in Extension award, respectively, from the Pacific Branch of the Entomological Society of America.
- John Williams, Animal and Rangeland Sciences, was recognized by the National Association of County Agricultural Agents with its Distinguished Service award for Oregon.
- JunJie Wu, Agricultural and Resource Economics, was named a fellow of Resources for the Future.
- Yanyun Zhao, Food Science and Technology, was named a fellow of the Institute of Food Technologists.

Student

- AnnaRose Adams, Bioresource Research Program, received one of three OSU Libraries Undergraduate Research Awards.
- Ann Bernert, Bioresource Research Program, was awarded the Western Society of Weed Science Scholarship Award, and placed first in the undergraduate student poster competition.
- Elise Cowley, Bioresource Research Program, was awarded one of ten University Honors College Promise Finishing Scholarships.
- Emily del Bel, Food Science and Technology, was awarded the Institute of Food Technologists Student Association Excellence in Leadership Award.
- Warren Gawlik, Horticulture, was one of 30 students nationally to receive a Jacobsen Turf Managers' Program Award.
- Justine Gullaba, Animal and Rangeland Sciences, was recognized by the Canine Health Foundation with its Acorn Grant for an outstanding grant proposal.
- Tiffany Harper, Bioresource Research Program, was awarded second place in a national MANRRS oral research competition.
- Miriam Hawk, Horticulture, was one of 24 students nationally to be named Outstanding Undergraduate Horticulture Student by the American Society of Horticultural Sciences.
- Christopher Hedstrom, Horticulture, was awarded second place at the Pacific Branch of the Entomological Society of America for the Masters Thesis Poster Competition.
- Susan Hilber Piacenza, doctoral candidate in Fisheries and Wildlife, has been awarded a National Marine Fisheries Service fellowship to study population dynamics of threatened and endangered sea turtles.
- Michelle Janik, Animal and Rangeland Sciences, was selected from 25,000 nominees nationally as one of eight recipients of the American Association of Avian Pathologists scholarship
- Marco Keiluweit, Crop and Soil Science, was awarded a scholarship to the Lawrence Livermore National Laboratory.
- Alejandra Marquez Loza, Bioresource Research Program, has been selected as the recipient of the U.S. government Barry M. Goldwater Scholarship. She also received one of ten University Honors College Promise Finishing Scholarships and a USDA-NIFA Multicultural Scholars Program scholarship.
- Bianca Martins, Crop and Soil Science, received support to present her paper at the International Weed Science Congress in China in June 2012.
- John Miskella, Crop and Soil Science received an Undergraduate Research Award from the Weed Science Society of America.
- Arlyn Moreno Luna, Bioresource Research Program, was awarded one of ten University Honors College Promise Finishing Scholarships.
- Sureerat Phuvasate, Food Science and Technology, was awarded second place in a poster presentation competition by the Pacific Fisheries Technologists.
- Elena Sanchez, Crop and Soil Science, received support to present her paper at the International Weed Science Congress in China in June 2012.
- Laura Tensa, Animal and Rangeland Sciences, was selected from 25,000 nominees nationally as one of eight recipients of the American Association of Avian Pathologists scholarship
- Sarah Wright, Bioresource Research Program, was awarded third place in a national MANRRS research competition.