

DEPARTMENT OF HORTICULTURE

STRATEGIC PLAN 2023



Oregon State
University

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HORTICULTURE
STRATEGIC PLAN
2023**

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INTRODUCTION

Worldwide, the horticulture industry is undergoing rapid change, particularly during the last two decades. Globalization, environmental concerns, urbanization, consumer choices, and technological advances in the plant sciences are major factors driving change in Oregon. Globalization introduces new patterns of commerce and competition requiring global perspectives and innovation to maintain viable markets and responsive enterprises. Environmental issues demand research and practices to achieve healthy communities, and resilient or adaptive landscapes and farm ecosystems. Consumers are increasing their demand for a safe, secure, affordable, and local agricultural products. Research into functional genetics, biology, and ecology continues to broaden our horizons and understanding. Farm profits, livelihoods, rural communities, and Oregon's horticultural enterprises demonstrate opportunities to adapt and improve.

Horticulture contributes healthy foods, aesthetic and inspiring landscapes, therapeutics and well-being, and ecosystem services such as clean air and water, biodiversity, green space, and livability. Increasingly, horticultural producers search for ways to reflect an array of production and marketing practices represented by green, sustainable, integrated, organic, ecological, or other market labels. Similarly, professional horticulturists consider ways to protect, enrich, and manage functional urban landscapes and watersheds while improving human health with a wide array of fruits, vegetables, nuts and healthy lifestyles. Clearly, every citizen shares the myriad benefits of horticulture in Oregon.

Horticulture contributes to ecosystem services (green space, oxygen, farm mosaics, wildlife habitat, etc.) while producing food and nursery crops or managing urban landscapes that sustain and protect genetic diversity and associated natural resources such as soil, water, air, and native species. Our vision blends the sciences of horticulture, plant biology and ecology, sociology, economics, and education into a broad framework. This framework addresses the complexity of rural and urban landscapes and watersheds with a systems-based understanding of natural resource management. Horticulture enhances the economic and environmental sustainability of Oregon's horticulture and urban landscapes. The resulting benefits will shape public policy, practices, and awareness of human interactions within managed ecosystems.

The Department of Horticulture action plan is integral to the College of Agricultural Sciences' areas of unifying focus. Our primary strength in programming lies in supporting and promoting 1) Agricultural Competitiveness and Resilience and 4) Working and Natural Landscapes. Additionally, our vision complements OSU's strategic plan and three multidisciplinary themes of 1) Advancing the Science of Sustainable Earth Ecosystems, 2) Improving Human Health and Wellness, and 3) Promoting Economic Growth and Social Progress to deliver integrated outcomes, improve learning, and increase funding through a capital campaign.

HISTORICAL CONTEXT

Since 1888, the Faculty of Horticulture at Oregon State University have made significant contributions to the scientific body of knowledge, supported growers through their research, and provided comprehensive education for students. As the Department and state of the science have evolved, we have explored the science of practices associated with plant physiology, genetics and breeding, molecular biology, integrated production practices and pest management, innovative post-harvest products, and turf and landscape management. Our faculty are nationally and internationally recognized in their service to a diverse and dynamic horticultural industry of tree fruits/nuts, berries, vegetables, nursery, specialty seed crops, turf, gardens and other ornamental landscapes. As expertise among faculty changed over time, so have relative strengths in the Department. Historically, we have been leaders in pomology and associated sciences, been a center of excellence in cold hardiness and stress physiology, and general woody plant physiology. More recently, strengths have emerged in integrated insect pest management of fruit crops, plant breeding and genetics, and pollinator science. Our shifts reflect the relative expertise of trained faculty, funding opportunities, and the needs of stakeholders.

DEPARTMENTAL BACKGROUND

Current Description (How we work)

We have 29 tenured or tenure-track faculty at five locations across the state, including six Assistant Professors, 13 Associate Professors, and 10 Professors. Of these, 18 are in Corvallis and 21 are distributed at branch experiment stations or county locations. Disciplines and crops include fruit tree production, insect pest management, vegetable and specialty seed production, turfgrass science, ecology, berry and winegrape production, genomics, pollinator science, breeding and genetics, and general horticulture.

There are 16 Assistant or Associate Professors of Practice, with four in Corvallis and 12 distributed around the state. There are eight Instructors, four Senior Instructors I, and two Senior Instructors II, of whom all but one consider their office as being in Corvallis. However, eight of the 14 there have responsibilities exclusively for distance education (eCampus or PACE). There are 10 Research Associates, with one housed outside of Corvallis. Finally, there are 34 Faculty Research Assistants (FRA), with 20 in Corvallis and 14 distributed around the state, which includes 22 FRA, seven Senior FRA I, and five Senior FRA II.

Recognition of our faculty and staff crosses all missions, with awards for exemplary achievement in Extension, research, and teaching including 13 of our faculty have been named Fellows of the American Society for Horticultural Science the highest honor of that professional society. Additionally, we have faculty in leadership positions among all professional societies in which they work and help steer policy and direction of these groups.

Analysis of Prior Action Plans

In planning for the future, we must review previous strategic plans to determine where we were successful and where we have opportunities for improvement. Assessing what prevented us from achieving our goals and how we can overcome those barriers is an important next step toward success in areas that remain a priority. The following five goals were drawn from a strategic plan developed in 2005 with revisions in 2007, 2010, and 2015. Under each goal there were many proposed actions, resource requirements, milestones, and measures. Many of the previous planning efforts were included in the current strategic goals, as we view the process of planning, action, evaluation, and revision as ongoing and integral to our success.

Milestones and Measures based on Program Goals:

1. Continue curricular and online course revisions emphasizing active learning and synthesis that enable students to learn and practice essential skills related to ecological landscapes, horticultural food and farm systems that improve health, livelihoods, economics, and our environment.
 - a. Increase student enrollment to 220 by 2020.
 - This goal was met and as of 2022, has been greatly exceeded.
 - b. Create a core of 5 teaching faculty for undergraduate courses and curricula with expertise in horticultural and ecological principles, sustainable and community-based farm systems, turf, landscape plant materials, propagation, and nursery production with other faculty contributing to the overall teaching program.
 - These courses and curricula are being delivered by faculty with appropriate expertise, but budgets (legislative appropriation and internal budgets) did not support achieving the goal as conceived. The program will only continue to grow with more faculty hires. Legislative action, the pandemic, and other issues have impacted our ability to secure positions, but endowments are changing the outlook.

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- c. Develop Oak Creek Center for Urban Horticulture into a model and dynamic learning center for students, citizens, and faculty.
 - This subjective goal is hard to evaluate. To the extent that it is an excellent resource for a portion of our students and stakeholder groups (e.g., Organic Growers Club, Intercultural Learning Garden, Master Beekeepers, and Master Gardeners), we can say that it was achieved. However, there is no dedicated funding, and the Center lacks many resources. It is not used as much as hoped for community engagement, due in part to the lack of funding, parking, and public access. Still, OCCUH serves as a valuable learning center for students and a research site for several programs.
 - d. Double the number of enrolled student credit hours by offering baccalaureate core and online courses and increasing enrollments.
 - We have met and exceeded this goal.
2. Research plant and ecological functions involving managed horticultural ecosystems that contribute ecological and human services such as food, clean air, and water, biodiversity, human health, green space, and livability in Oregon.
 - a. Hire a plant biologist who will research the genetic regulation of phytonutrients in horticultural crops.
 - We have not hired this position, and it is no longer on our priority staffing list, due to the many vacancies that take priority over it.
 - b. Support hiring a new horticulturist and soil ecologist at MCAREC.
 - There have been several horticulturist hires and the position is currently filled. No soil ecologist has been hired. We seek to retain horticulturist(s) at MCAREC.
 - c. Increase funding by \$100,000 per research faculty FTE, annually.
 - Faculty have been extremely successful in acquiring research funds, but this analysis has yet to be conducted to determine whether this metric has been met. Instead, we consider whether the faculty are raising sufficient funds to do an exemplary job in meeting the duties outlined in their position description. We feel this is more aligned with the charge and mission of the Department, rather than hitting an artificial target for fundraising.
 - d. Analyze and evaluate the graduate program in Horticulture. Develop and implement changes to ensure quality and growth as new faculty members begin.
 - We conducted a 10-year review in 2012. Regarding new faculty, we have a dichotomy between Corvallis faculty and those at branch stations, with the latter expressing a challenge to attract and secure students. This remains a priority.
 - e. Co-create a graduate program in plant genetics and breeding.
 - We have both undergraduate and graduate options in PBG that we share with Crop and Soil Science.
 - f. Increase the number of citations/FTE for faculty and graduate students.
 - We have not conducted this analysis to compare historical to current citations. However, metrics indicate that our faculty are competitive with peer institutions.
 - g. Attract postdoctoral faculty members as a result of obtaining grants.
 - We have 10 Research Associates, most of whom would formerly have been classified as postdoctoral scholars. We remain committed to doctoral and postdoctoral training, but do not wish to constrain faculty on their recruitment or classification of trainees.

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- h. Inform undergraduate and graduate teaching, peers, professional disciplines, and Oregonians of our discoveries.
 - We have yet to appropriately relay many of our achievements to our stakeholders outside of academia. Needs improvement and is being addressed.
 - i. Emphasize plant biology, genetics and ecology in our graduate program and enroll 40 high-quality students.
 - As of 2022, we have more than 50 graduate students. Many of these are in breeding and genetics programs or studying fundamental aspects of plant biology.
 - j. Enroll a minimum of 3 students annually in the undergraduate Horticulture Research option.
 - Enrollment in this option is low but varies. Enrollments since AY2014 have met the metric 50% of the time. Some students who may have previously selected this option have moved to the Plant Breeding and Genetics Option (or others). We prioritize involving undergraduate students in research; however, enrollment in this option is not critical. Undergraduate students across many options are engaged in research and it remains a priority for all students to have an opportunity.
 - k. Implement the Department's capital campaign.
 - We have not launched a capital campaign per se, though we work closely with the OSUF to seek support for our programs.
3. Research and share new knowledge that creates adaptive farm, food, and landscape systems by collaborating with industry leaders, agencies, and stakeholders to improve production efficiencies, environments, livelihoods, and human well-being.
 - a. A faculty team will deliver education and research involving ecological landscapes, ecosystem services, and innovative technologies to improve the management of urban landscapes, healthy living, managed ecosystems, and watersheds.
 - This milestone is broad, and some aspects have been met. A PACE program and a stand-alone eCampus certificate in Urban Agriculture were launched and attract robust enrollment. The Urban Agriculture Certificate along with the Master Gardener education program, delivers education on many of these topics.
 - b. Develop measures of ecosystem services that sustainable farm, food, and landscape systems provide.
 - We have documented some aspects of ecosystem services, but more work remains. This topic is of critical importance as we increase our focus on climate change and how horticultural science can support resilient farming and landscape systems.
 - c. Submit proposals to external competitive sources to engage in research that improves water quality, manages pests while considering ecology and economics, creates sustainable practices, develops curricula, and evaluates the impact at \$250,000 annually.
 - This analysis has yet to be performed to dissect grant applications by emphasis in this manner, but many faculty are active in projects in these areas; likely the scale of these activities are larger than the goal.
 - d. Hire a tenure-track entomologist, weed ecology and management specialist, pollinator ecologist and community farming systems horticulturist to complement systemic research directions such as crop ecosystems, IPM including surrounding habitat, and practices that contribute to ecosystem services in Oregon.
 - We have entomologists, weed scientists, and pollinator ecologists, but we do not have a tenure-track community farming systems horticulturist. Many faculty statewide have farming systems expertise.

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- e. Develop new Extension curricula involving the “green industry” and small, medium and large-scale landscapes and agro-ecosystems.
 - In past years, the High Desert Green Industry Conference and Willamette Valley Green Industry Conference, supported by OSU Extension Horticulture faculty served in this role.
 - Non-credit curricula offered through OSU PACE provide CEUs recognized by various professional organizations that serve the Green Industries, including the Oregon Landscape Contractors Board and the National Association of Landscape Professionals. We have a new PACE series that will be used to certify Oregon Certified Nursery Professional in collaboration with the Oregon Association of Nurseries.
 - f. Train and provide information to Oregonians associated with managed ecosystems and services.
 - Several programs provide information to Oregonians on managed ecosystem services (e.g. Garden Ecology Lab; Pollinator Health; Ask Extension) and evaluation data show that we have been successful in changing knowledge, attitudes, and behavior related to ecosystem services.
 4. Improve communication, research, and teaching facilities with modern technologies to save money, support innovation and discovery, and deliver statewide education.
 - a. Develop gift accounts for facilities with the OSU Foundation that will obtain \$40,000 and \$5,000 annually in support of the research farms and teaching, respectively.
 - Some funds are available for general use, but it is still being determined if these specific funds were established.
 - b. Gift/donor campaign adds value to the delivery of research, teaching, and Extension programs; re-search farms are sustainable.
 - We have a robust fundraising program, but it is not a capital campaign. Additionally, the research farms are no longer under Horticulture leadership, but rather CAS leadership.
 5. Convene “United Oregon Horticulture” as a stakeholder board to critically evaluate, monitor, and advocate progress and priorities for the entire program.
 - a. We have not convened UOH. Discussions with former Department Heads illustrated the intense time commitment to develop, establish, and maintain such a group as a viable and cohesive unit. Other challenges became apparent.

STRATEGIC PLANNING FRAMEWORK

Strategic planning is a product and a process. The process occurs within a strategic framework, during a specific time and place. It also occurs within a context of institutional values and personal commitment. This is the context in which planning takes place.

The Department of Horticulture operates within the broader context of Oregon State University, the College of Agricultural Sciences, and the state's network of Branch Experiment Stations and Extension offices. Furthermore, as we have a national presence in plant and related sciences, we observe and follow many of the principles outlined in the NIFA climate adaptation and resilience plan, highlighted below, and align with the American Society for Horticultural Science's position in finding strategies and solutions to climate change (<https://ashs.org/page/OurPosition>). The following missions, values, and commitments provide the framework for all Departmental strategic activities.

Oregon State University Mission

As a land grant institution committed to teaching, research, and outreach and engagement, Oregon State University promotes economic, social, cultural, and environmental progress for the people of Oregon, the nation, and the world. This mission is achieved by producing graduates competitive in the global economy, supporting a continuous search for new knowledge and solutions, and maintaining a rigorous focus on academic excellence, particularly in three Signature Areas:

1. Advancing the Science of Sustainable Earth Ecosystems,
2. Improving Human Health and Wellness, and
3. Promoting Economic Growth and Social Progress.

College of Agriculture Mission

Oregon is unmatched in the density of its diverse agricultural, environmental, and social landscape. As the founding college of the state's land-grant institution dedicated to serving all Oregonians, the College of Agricultural Sciences stands at the crossroads of conservation and production. We find creative solutions at the confluence of diverse perspectives. As champions of science, we embrace differences to find common ground and create opportunity — committed each day to make tomorrow better.

The inherent strengths and aspirational opportunities through which we will advance that unifying purpose, include:

1. Agricultural Competitiveness and Resilience
2. Food Innovation for Health, Markets, and Access,
3. Coastal Food Systems and Conservation, and
4. Working and Natural Landscapes.

Oregon State Extension

Vision

The life of each person we engage will be demonstrably improved and enriched by access to and co-creation of innovation, knowledge, and expertise.

Mission

Outreach and engagement at Oregon State University enhance access to enrichment and problem solving through reciprocal relationships for the exchange of knowledge and resources in partnership with individuals, communities, businesses, industries, government, and educational institutions.

Values

- ▶ Learner-centered approach: We engage collaboratively with our diverse learners and stakeholders and adapt to meet their needs.
- ▶ Innovation: We embrace creativity and new methods, ideas, and products to improve our services.
- ▶ Integrity: We are responsible, ethical and accountable for our actions.
- ▶ Diversity: We embrace and advocate for diversity, equity, and inclusion.

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- ▶ Knowledge: We use research-based, community-generated, and indigenous knowledge to guide our decisions, practices, and actions.
 - ▶ Healthy work environment: We respect that faculty and staff are valuable resources and believe we all deserve an empowering, supportive, and caring environment.
 - ▶ Social responsibility: We contribute to society's well-being and intellectual, cultural and economic progress.

Agricultural Experiment Station Mission

The Oregon Agricultural Experiment Station is the principal agricultural research agency in the state. Its mission is to conduct research in the agricultural, biological, social, and environmental sciences for Oregon's economic, social, and environmental benefit.

National Institute of Food and Agriculture – NIFA Climate Adaptation and Resilience Plan 2022

The National Institute of Food and Agriculture (NIFA) “provides leadership and funding for programs that advance agriculture-related sciences.” The Agency invests in and supports initiatives that ensure the long-term viability of agriculture. NIFA applies an integrated approach to ensure that groundbreaking discoveries in agriculture-related sciences and technologies reach the people who can put them into practice. NIFA has the following program priorities:

- ▶ Develop new opportunities to address climate change vulnerabilities.
- ▶ Encourage stakeholders to adapt their science to climate change.
- ▶ Take an integrated systems approach to climate change programming.
- ▶ Integrate climate change into agency-wide planning processes.
- ▶ Increase interagency coordination for climate change science.
- ▶ Adapt NIFA granting procedures to climate change.
- ▶ Examine reporting mechanisms to track climate change expenditures and impacts.
- ▶ Improve NIFA's workforce flexibility to better adapt to climate change.
- ▶ Increase outreach to stakeholders about NIFA climate change activities, opportunities, and data.

Our Values and Commitments

The faculty and staff members of the Department of Horticulture are committed to the following guiding values, principles, responsibilities, commitments, and practices as expressed by Oregon State University and the College of Agriculture:

As a member of the Oregon State University family, we honor these commitments expressed in SP4.0 (<https://leadership.oregonstate.edu/strategic-plan>). We will be:

- ▶ Innovators and collaborators with our students in research to drive solutions.
- ▶ The source of excellent education for all learners.
- ▶ Leaders in the delivery of education.
- ▶ Welcoming and foster belonging and access for all.
- ▶ Visionary in our integration of the arts, humanities, sciences, and engineering,
- ▶ Accountable leaders.
- ▶ Agile and entrepreneurial.
- ▶ Mindful of this special place and all Oregonians.

Members of the College of Agricultural Science adhere to the following values articulated in the CAS CARE document <https://agsci.oregonstate.edu/sites/agscid7/files/main/for-faculty/care.pdf>:

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- ▶ We are responsive to the needs of those we serve.
 - ▶ We are a reliable source of credible, evidence-based information and education.
 - ▶ We partner with individuals, organizations, businesses, and stakeholders beyond OSU.
 - ▶ We include diverse perspectives in our research, outreach, and educational efforts.
 - ▶ We foster mutual respect among ourselves and the broader community.
 - ▶ We are accountable for the stewardship of resources and fulfilling of our missions.

The combination of these overarching principles and values provides additional context and guidance for this strategic planning process and the strategic plan.

Strategic Planning Process

While we honor the Department's rich history of research, instruction, and Extension – it is essential to plot the future of our programs to continue serving the needs of Oregon's diverse stakeholders. New technology, production constraints, climate change, and other issues make it more important than ever to be intentional about our future. The Department of Horticulture thus initiated a strategic planning process to develop a seven-year strategic plan that will guide the Department's adaptation, development, and future operations in a rapidly changing physical, social, and economic environment.

The purpose of the strategic planning process is to create a simple guiding document for the Department to move faculty, staff, volunteers, and local leaders through a community engagement process that engenders support and advice for the Department. This strategic plan integrates and aligns University, College, and Department plans toward a common end. The final product is this written report that can be used to guide the development of the Department's operational and programmatic plans and to recruit new partners to achieve the strategic objectives.

The Strategic Planning Committee consisted of Ryan Contreras, Anne Gearhart, Alec Kowalewski, Gail Langellotto, Shawn Mehlenbacher, Marcelo Moretti, and Ashley Thompson with coordination and assistance from Jeff Hale, Strategic Planning Consultant.

This Strategic Planning process sought to establish new activities and directions and validate the need to retain current activities through the involvement of industry representatives, consumers, volunteers, faculty, and staff. A list of key opinion leaders, government and quasi-governmental agency representatives, industry leaders, not-for-profit organizations, educational institutions, volunteer groups, and other constituency representatives was compiled. A general "environmental scan survey" (Attachment A) was distributed to representatives on the list from which we received 102 responses including from Master Gardeners, Faculty at many ranks, and producers. The departmental Strategic Planning committee sorted and reviewed the survey results to develop strategic goals and objectives. The process provided a meaningful learning experience for the participants and created opportunities to explore programmatic partnerships and collaborations.

Committee members continued to work with representatives of the community, not-for-profit organizations, commodity groups, farmers and producers, and government agencies to modify the strategic directions outlined in the plan. On December 16, 2022, the participants met to review the strategic plan's first draft and suggest final changes to the identified strategic objectives. The participants also discussed additional forms of community input, such as listening sessions, focus groups, and other forms of targeted feedback. They also clarified goals and objectives and discussed barriers and the steps necessary to operationalize the plan.

The strategic planning process ensures alignment with and advancement of the interests and goals of the College of Agricultural Sciences. The Department's stated goals and objectives are achieved by creating measurable operational objectives drawn from these strategic objectives. These specific operational objectives are linked to the action plans of faculty and staff members. Each person on staff, along with other OSU faculty, administrators, and community partners, will be given various responsibilities, actions, and objectives (job descriptions) over an extended timeline. These deliverables are met by adjustments and alignments to employee workloads and opportune moments within the community. They are constantly informed by strategic objectives and guiding values. Assessment of work activities and outcomes will be a regular part of plan assessment and employee review.

SITUATIONAL ANALYSIS

The external survey (Appendix A) and the internal SWOT analysis resulted in the identification of the following planning information:

Strengths

Excellence in diverse areas of research that has relevance to stakeholder needs based on our strong relationships with these groups. These include long-term projects that provide science-based information to inform and advance our industries. This is achieved by the longevity of our faculty, who understand that such long-term research is not economically feasible for the industry to conduct but is critical to their success. Areas noted of strength were plant breeding & genetics, entomology, and home horticulture/Master Gardener programs. However, survey respondents also reported the important transdisciplinary nature of our programs that involves more than these areas and includes science from cultivar development to end-use quality and stakeholders from home gardeners to large-scale producers and processors.

Our teaching program was noted for being vital in reaching large numbers of undergraduates with strong enrollment in a broad range of classes that are highly scored in learner reviews. In addition, our teaching program provides excellent experiential learning opportunities in many ways, including our credit courses that include hands-on laboratories, independent study courses, research opportunities for undergraduates, and a required internship program.

Respondents noted that our Extension program is engaging and provides high-quality training and that our research-based solutions are broadly available to the public. The longevity of our staff, their relationship with and knowledge of the industry, and general communication with stakeholders were pointed out as important strengths of Extension. We have a crucial statewide presence that provides relevant information to improve Oregonians' lives through programs such as Master Gardeners, Master Beekeepers, the School IPM program, and more. Our citizen stakeholders value these programs and use the information and tools from them – often daily.

Weaknesses

Respondents noted some areas of weakness to be addressed, including the difficulty in hiring qualified support staff and that the hiring or firing process often conflicts with granting cycles. Another area for improvement was the need for an identified critical mass, which we interpret to mean the necessary team of collaboration around particular topics. For example, OSU Horticulture was renowned for its woody plant physiology and fruit tree production expertise. Previously these areas were supported by many faculty who possessed complimentary expertise. Today, some of our historic strengths are absent or limited to few faculty (e.g. plant nutrition, cold hardiness, fruit tree physiology, postharvest physiology).

There was a disconnect noted between OSU values and those of some counties that provide Extension funding. This can leave those faculty in the middle of trying to navigate both sets of values, confusion in mission and negatively impacting success.

Faculty identified that their time was stretched thin due to administrative processes that take time away from assigned duties, including purchasing, HR, website development, and annual reporting. Additionally, the lack of funding and infrastructure to support research and teaching were noted as limiting our success.

Opportunities

Faculty respondents noted a significant opportunity for OSU faculty and staff to be leaders in developing horticultural solutions to climate change, including research on mitigation and resilience. Possible methods of mitigation to investigate included reducing fossil fuel use in production and increasing carbon sequestration. As we experience changing climate, respondents suggested studying how to improve the resilience of landscapes (water use efficient plants, tolerance to increased heat loads, reduced management inputs, emerging pests and disease) and resilience of production (ecosystem stewardship, reducing inputs such as water or agrochemicals, innovative response to emerging pests and diseases). As climate change continues and intensifies, we need to revise or establish new production guidelines for producers and the public.

There was the suggestion to better integrate across disciplines, scales, and crops as researchers seek to better solve problems. Recommendations included collaboration of university, city, private R&D, and producers together considering existing and emerging issues to develop new solutions. Greater collaboration with computer scientists and

engineers to employ new technology and expanding our use of biotechnology, while maintaining grower relationships and input to ground truth new ideas, will allow us to better solve current and future problems.

Respondents noted opportunities to better engage growers and improve communication across missions. For example, respondents suggested that we develop for-credit internships and remote options for coursework – both are among the more noteworthy and successful aspects of our undergraduate teaching programs, as we have long required internships for which students earn credit; OSU offered the first online Horticulture degree in the nation. These examples illustrate the opportunity to improve communication and outreach. Other respondents felt that we have an opportunity to train students in more practical skills such as machinery operation and others indicated we are missing an opportunity to offer an associate degree in collaboration with local community colleges. This, too, is an opportunity to improve our communication to relay what our mission is compared to that of technical schools, or the training students receive either through internships or post-graduation as they enter the workforce. We can work collaboratively with newly established CAS Office of Recruitment to increase enrollment. There also is an opportunity for improved internal communication with students to share opportunities on obtaining or creating their own positions that create solutions in our communities.

The world is evolving, and to remain relevant, our Extension programming must evolve with it. Our Master Gardener, Master Beekeeper, and Master Melittologist programs are examples of the programming and stakeholders informing and supporting one another. Other strong examples are our increased suite of PACE courses that offer remote non-credit training in many areas for the public and professionals. As our stakeholders grow in number and diversity and technology extends our reach, we have an opportunity to increase and improve our communication to effectively reach our intended audiences.

Threats

The principal threat to our success is funding, especially for teaching and student programs. We have increased our numbers to 629 total students who have declared Horticulture as their majors; however, as of winter 2023 we have 315 registered students registered for classes. The disparity is mostly among eCampus majors who may be irregularly enrolled. There also are 37 students pursuing our eCampus certificate programs and 66 pursuing minors in Horticulture or Entomology, while also having lost considerable FTE over the last decade. We had 208 total students in 2016 and 3.2 total FTE in teaching. Today, with 152% more registered students, we have 2.1FTE tenured or tenure-track faculty, a 66% staffing reduction. Online students (eCampus) are particularly impacted as particular some critical classes for the major are at capacity, which slows progression to graduation. This issue is compounded each year.

Additionally, the academic advising team is working beyond capacity. Our combined load of registered students is at the top for National Academic Advising Association (NACADA) effective advising numbers. However, there are an equal number of students who are not actively enrolled, yet student advisors must keep informed, as these students could return to active status at any time. As our student numbers grow, so does our need for advising to allow us to operate at the recommended average of 1 advisor for 300 students. The current advising staffing level of 1.3FTE is appropriate for 390 undergraduate students across majors, minors, and certificates. Lack of effective or timely advising hinders growth and DEI efforts as we cannot engage in strategies to recruit or retain students, especially those from traditionally underserved populations.

Across mission areas in the Department, fewer faculty are asked to do more with less. Nor have areas that could be reduced or eliminated been identified in a timely manner. Faculty, student, and stakeholder satisfaction are threatened by inadequate staffing.

Our facilities are not competitive. This directly threatens our teaching mission by limiting recruitment and effectiveness in training students, it threatens our research mission by reducing competitiveness in grant applications or ability to carry out research, and all missions are threatened by the potential lose faculty to better equipped institutions.

Department of Horticulture Mission

Horticulture at Oregon State University improves the environmental, economic, and social sustainability of integrated farm and food systems, and landscape ecosystems by discovering new knowledge, delivering compelling education, and developing valuable methods, applications, and understandings, within Oregon, across the nation, and with global reach.

OUR STRATEGIC GOALS

We have identified five strategic directions consistent with the missions of the Department, College, and University. The Department of Horticulture will conduct scientific research, educate students and the community, reach out to a more diverse constituency and collaborate with partners to:

Goal 1: Identify, demonstrate, and disseminate climate mitigation strategies to improve horticultural competitiveness and resilience in farm and food systems as well as working and natural landscapes. [Research, Teaching, Extension goal]

Goal 2: Increase and support strong relationships across disciplines, Departments, and colleges.

Goal 3: Improve public and partner awareness of the Department's vital role in developing horticultural products, methods, and applications.

Goal 4: Offer vibrant teaching, outreach, and engagement opportunities that build on traditional stakeholder groups while using new methods to increase accessibility, inclusion, diversity, and engagement.

Goal 5: Undertake and complete deferred maintenance of the greenhouses, farm structures, lab spaces, and distance education teaching spaces.

GOALS AND OBJECTIVES

Goal 1: Background

Broadly, climate change is now the most significant threat to our stakeholders' livability, sustainability, and success. Department faculty and staff have expertise that can contribute to product and strategy development to support the public and producers as they respond to these threats. There is an opportunity to lead in collaborative research to address current and future needs. Addressing climate change is a priority throughout Oregon, the nation, and internationally.

Goal 1:

Identify, demonstrate, and disseminate climate mitigation strategies to improve horticultural competitiveness and resilience in farm and food systems as well as working and natural landscapes.

- ▶ 1.1: Develop resilient cultivars, products, system designs, and management methods. This includes resilience to biotic stresses, such as novel or invasive pests and diseases, as well as abiotic stresses, particularly drought and heat stress, that will intensify as climate change advances.
- ▶ 1.2: Quantify ecosystem services of our cultivars, products, systems, and management methods. Evaluate carbon sequestration, stormwater mitigation, amelioration of heat island effects, and pollinator services of our crops. Evaluate relative impact of non-chemical management practices of weed and pest management.
- ▶ 1.3: Quantify the economic impact of our work in identifying and implementing mitigation strategies in collaboration with expertise including faculty in Applied Economics.

ANTICIPATED RESULTS. Our research will improve climate change resilience for Oregon producers and mitigate the impacts of management on the environment, resulting in a more sustainable horticultural production system. New expertise in landscape systems and plant biotechnology will create new opportunities for collaboration with existing programs. Replacing the weed management of vegetable crops position will maintain and strengthen existing collaborations. As stakeholders better understand the impacts of our research to improve ecological and economic sustainability, they will better support our activities.

Goal 2 Background:

We must work collaboratively to address the mission-related needs of students and stakeholders. This includes internal collaboration across faculty-led programs within our Department, but also include such diverse areas as engineering, computer science, consumer preference, mass communication, public health, and business management/economics.

We must build a new or renew relationships with Business, Applied Economics, Engineering, Public Health and Human Services, and other academic disciplines. We must maintain and strengthen our collaborations with traditional partners in the plant sciences such as pathologists, soil scientists, agronomists, and foresters.

Goal 2:

Increase and support strong relationships across disciplines, Departments, and colleges.

- ▶ 2.1: Support and empower cross-lab and interdisciplinary collaborations within and beyond the Horticulture Department.
- ▶ 2.2: Identify and build new strategic relationships across disciplines, departments, and colleges to target and integrate diverse perspectives into research design and execution.
- ▶ 2.3: Integrate applied social aspects of horticulture to understand how our work can support improved quality of life for all Oregonians.
- ▶ 2.4: Educate stakeholder groups to value interdisciplinary collaboration in serving their needs and developing innovative approaches and solutions.

ANTICIPATED RESULTS. Greater collaboration will generate more creative ideas and solutions. Collaboration among researchers from different disciplines will mutually strengthen collaborators' program(s).

Goal 3: Background

Results of the 2022 Strategic Planning survey indicated that many of our stakeholders were unaware of some of our most important and successful current initiatives.

Goal 3:

Improve public and partner awareness of the Department's vital role in developing horticultural products, methods, and applications.

- ▶ 3.1: Elicit input and engage in two-way dialogue with the industry leaders, public, our faculty, staff, and students regarding internships, research priorities, job placement outcomes, experiential learning opportunities, and industry partnerships.
- ▶ 3.2: Educate industry partners to better understand the breadth of Departmental activities and accomplishments.
- ▶ 3.3: Increase outreach to 6-12 grade students through presentations to Ag in the Classroom, FFA and 4H.
- ▶ 3.4: Ensure all our students are exposed to horticultural research.

ANTICIPATED RESULTS. Better communication and stakeholder awareness of the diverse work being conducted in Horticulture and at OSU broadly will promote multifaceted support from industry, legislature, and the public, as well as support student recruitment and increase public engagement.

Goal 4: Background

As our stakeholders grow and diversify, so should our methods to reach them. We cannot abandon our traditional methods entirely, as this would disenfranchise key partners. But we must grow and adapt to reach our audiences where they are. We have expanded our eCampus and PACE programs to reach place-bound, second-career, and other learners not served by Corvallis operations. However, major opportunities to engage and grow our audience remain.

Goal 4:

Offer vibrant teaching, outreach, and engagement opportunities that build on traditional stakeholder groups while using new methods to increase accessibility, inclusion, diversity, and engagement.

- ▶ 4.1: Build upon and enhance the robust volunteer-based programs housed in the Horticulture Department (e.g. Master Gardener, Master Beekeeper, Master Melittologist) as valued contributors to and bridges between science-based research findings and applications in the field.
- ▶ 4.2: Prioritize web accessibility, while also ensuring access to face-to-face meetings.

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- ▶ 4.3: Expand our service to and engagement with speakers of other languages than English.
 - ▶ 4.4: Improve outreach to, and engagement with, schoolteachers, Ag in the Classroom, FFA, and 4H.
 - ▶ 4.5: Expand outreach and engagement to marginalized populations at sensitive sites

ANTICIPATED RESULTS. Better communication and stakeholder awareness of the diverse work being conducted in Horticulture and at OSU broadly will promote better support from industry, the legislature, and the public in addition to supporting recruitment of diverse students, faculty, and staff.

Goal 5: Background

The state of many Department facilities has been identified as limiters to our missions or are lacking entirely. Inferior or insufficient office, storage, greenhouse, laboratory, and teaching space, create operational inefficiencies or impediments. In turn, these reduce our competitiveness in recruitment and grant acquisition.

Goal 5:

Undertake and complete deferred maintenance of the greenhouses, farm structures, lab spaces, and distance education teaching spaces.

- ▶ 5.1: Reduce the quality gap between our facilities and those of our peer institutions.
- ▶ 5.2: Ensure adequate storage of equipment, weather protected workspace, office space, and restrooms at farm units.
- ▶ 5.3: Obtain working equipment that allows remote teaching/interface from Horticulture classrooms with priority to update Horticulture classrooms in Corvallis. The goal is to have regionally available sites throughout Oregon at Research and Extension Centers or County offices depending on relative distance.
- ▶ 5.4: Collaborate with CAS and OSUF to raise funds to maintain existing facilities and support new development.

ANTICIPATED RESULTS. Our faculty have succeeded across all missions despite poor facilities. A better equipped faculty could be more successful in recruiting and supporting both students and faculty, obtaining grant funds, and securing industry support.

Ongoing Roles and Responsibilities

The Department recognizes the importance of these operational priorities to continue baseline operations and to have the resources, partnerships, and community support necessary to achieve strategic goals. The Department's operational priorities include:

1. Offering excellent education in Corvallis and via distance modalities.
2. Continuing Extension programming and activities.
3. Continuing to pursue basic and applied research to solve existing and emerging problems.
4. Maintaining facilities to the highest functional standards resources permit.

Departmental strategic directions can only be realized if other operational priorities are met. We continue to implement the listed priorities routinely. As we move forward, we will maintain contact with traditional stakeholders as we employ new modalities and methods to establish relevance with upcoming generations of potential stakeholders.

Balancing ongoing operational objectives and the effective realignment of new and existing resources toward strategic goals and objectives are necessary key actions to achieve our strategic goals. As we move forward, we want to nurture approaches that promote inclusive excellence.

ASSESSMENT OF OUTCOMES

Each goal can be quantified and reviewed annually to update the overall action or operational plan. Each strategic objective must be broken down into implementation steps (i.e., activities and tasks). Each implementation step will be assigned a lead and a deadline (what, by whom, by when). These activities, roles, or responsibilities can be included in job descriptions or given as special assignments.

An outcome evaluation approach will be implemented to determine whether and when the stated measurable objectives were achieved. The Department will enhance its service responsibilities to the community by communicating periodically with stakeholders regarding progress toward common and strategic objectives. Further assessment could be achieved through an annual review of the plan with stakeholders, feedback forms, formal and informal assessment, and employee evaluation and review. Key stakeholders, advisory board members, and faculty will receive periodic updates on the progress toward these strategic goals, which will be reviewed at an annual faculty meeting. Individual implementation assignments will be reviewed during faculty and staff annual reviews.

Goal 1:

Identify, demonstrate, and disseminate climate mitigation strategies to improve horticultural competitiveness and resilience in farm and food systems as well as working and natural landscapes.

1. Hire new tenure-track landscape faculty. 2024*
2. Hire new tenure-track biotechnology faculty. 2024
3. Replace tenure-track weed management position for vegetable crops. 2023
4. Incorporate impact statements into the annual periodic review of faculty to be assembled by Department Head to share with CAS and beyond. 2024

Goal 2:

Increase and support strong relationships across disciplines, Departments, and colleges.

1. Establish and convene a communications committee with clear charge to improve communication internally and externally. 2022
2. Continue the DEI committee and give charge for ongoing activities to ensure we promote an inclusive workplace in which all are supported, particularly those with minoritized identities. 2022
3. Meet twice annually with CAS Associate Dean for Research and CAS Sponsored Programs Services to identify opportunities for research across departments and disciplines. 2023

Goal 3:

Improve public and partner awareness of the Department's vital role in developing horticultural products, methods, and applications.

1. Establish and convene a communications committee with clear charge to improve communication internally and externally (also from 2.1). 2022
2. Work with the recruitment office in CAS to identify areas of partnership to increase our relationship and recruitment from Oregon schools. 2023
3. Promote research thesis as an alternative to internship to encourage more students to consider the research track, with a goal to double the number of research theses by 2025. 2023
4. Include a question specific to industry/stakeholder relationship during the annual review. 2024

*Dates listed are start dates

Goal 4:

Have vibrant teaching, outreach, and engagement that builds on traditional groups while utilizing new methods for accessibility, inclusion, diversity, and engagement.

1. Connect with the national Seed Your Future program to improve recruitment, career placement, and education. 2023
2. Establish and convene a communications committee with clear charge to improve communication internally and externally (also from 2.1 and 3.1). 2022

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3. Continue the DEI committee and give charge for ongoing activities to ensure we are promoting inclusivity in which relationships are supported. 2022
 4. Translate at least one PACE course into Spanish yearly based on input from instructors, PACE staff, and evaluation of audience needs. 2023
 5. Develop and offer two new PACE courses annually until our eCampus curriculum is effectively converted to serve non-degree seeking industry learners. 2023
 6. Develop videos (monthly or similar) across all programs and disciplines and post on designated social media and web sites. Identify communication channels to reach various constituencies (videos, social media, Enews, website links, etc.). 2023
 7. Have faculty make at least four contacts (total as a faculty) annually with grade 6-12 students to promote our programs. 2023

Goal 5:

Complete all deferred maintenance of the greenhouses, farm structures, lab spaces, and distance education teaching spaces.

1. Identify resources to fund improvements. Part of this will be achieved by reducing individual faculty reserves to \$250,000. Identify OSUF funds that can be used for these tasks as match to CAS or University funding. 2023
2. Apply for Building Use Credit (BUC) funds to obtain WiFi at Lewis-Brown Farm. 2023
3. Build equipment storage and multi-use barn at Lewis-Brown Farm. 2024
4. Increase office capacity 100% at Lewis-Brown Farm. 2025
5. Improve overall capacity for cold rooms, controlled environments, and greenhouse – both in ALS, greenhouse, and farms as appropriate.

*Dates listed are start dates

IMPLEMENTATION PLAN.

Progress toward departmental goals during the first two years will be evaluated during annual reviews of faculty, staff and our unit review with the CAS Dean. Quantitative metrics (e.g. number courses) will be evaluated annually where possible and discussion during reviews will assess qualitative metrics (e.g. quality of facilities). Review strategic plan annually.

ATTACHMENT A

Community Survey

FACULTY – CORVALLIS

1. What are you most proud of in your program?
2. What are your top five impediments from achieving your goals at OSU?
3. What are the primary trends, areas of research and outreach, industry partnerships and/or funding that the Department of Horticulture could explore? We are looking to explore larger scale/collaborative opportunities, rather than those individual PIs use to conduct individual program work.
4. Are the opportunities to link the research and teaching missions more tightly? Are there creative funding models that we should explore to support this effort?
5. Are there creative endeavors for which seed money is difficult to secure that would allow you to explore larger opportunities? Where could you turn \$20,000 into \$1 million? Are there other impediments preventing you from obtaining large grants?
6. What infrastructure necessary to support successful research are you lacking? Do you have ideas for funding construction?
7. How do you see our department's efforts in Diversity, Equity, and Inclusion (DEI) fitting into the overall efforts at OSU? How do you rate our department's commitment to DEI and what actions would you recommend for improvement?
8. How does your program contribute to the research, teaching, and/or Extension missions of the Department of Horticulture?
9. In some instances, we seem to lack "critical mass" related to coalescing around research topics, disciplines, or commodities. In other disciplines we are on the verge of losing such a critical mass. What area(s) around which do you think we should focus on to create or sustain a critical mass? What three collaborations would synergize your efforts? Provide positions and locations.
10. How can we improve student recruitment and community engagement?

FACULTY – OUTSIDE CORVALLIS

1. What are you most proud of in your program?
2. What are your top five impediments from achieving your goals at OSU?
3. What are the primary trends, areas of research and outreach, industry partnerships and/or funding that the Department of Horticulture could explore? We are looking to explore larger scale/collaborative opportunities, rather than those individual PIs use to conduct individual program work.
4. Are the opportunities to link the research and teaching missions more tightly? Are there creative funding models that we should explore to support this effort?
5. Are there creative endeavors for which seed money is difficult to secure that would allow you to explore larger opportunities? Where could you turn \$20,000 into \$1 million? Are there other impediments (administrative, etc.) preventing you from obtaining large grants?
6. What infrastructure necessary to support successful research are you lacking? Do you have ideas for funding construction?
7. How do you see our department's efforts in Diversity, Equity, and Inclusion (DEI) fitting into the overall efforts at OSU? How do you rate our department's commitment to DEI and what actions would you recommend for improvement?
8. How does your program contribute to the research, teaching, and/or Extension missions of the Department of Horticulture?
9. In some instances, we seem to lack "critical mass" related to coalescing around research topics, disciplines, or commodities. In other disciplines we are on the verge of losing such a critical mass. What area(s) around which do you think we should focus on to create or sustain a critical mass? What three collaborations would synergize your efforts? Provide positions and locations.
10. How can we improve student recruitment and community engagement?

STAFF/PROFESSIONAL FACULTY

1. What are you most proud of in your program?
2. What are your top five impediments from achieving your goals at OSU?
3. What are the primary trends, areas of research and outreach, industry partnerships and/or funding that the Department of Horticulture could explore? We are looking to explore larger scale/collaborative opportunities, rather than those individual PIs use to conduct individual program work.
4. What infrastructure necessary to support successful research are you lacking? Do you have ideas for funding construction?
5. How do you see our department's efforts in Diversity, Equity, and Inclusion (DEI) fitting into the overall efforts at OSU? How do you rate our department's commitment to DEI and what actions would you recommend for improvement?
6. What opportunities for recruitment of students are we missing?
7. What constituents can you identify for fundraising opportunities? This could include endowed positions, scholarships, gifts, etc. – include the scale and form of support you envision.
8. Are there untapped opportunities for outreach within any of our programs. Do any of these outreach opportunities have potential for generating revenue?

EXTERNAL STAKEHOLDERS

(industry, ngo, philanthropic orgs, commissions, donors, etc.)

1. What are the strengths of the Horticulture Department?
2. What are the primary trends, areas of research opportunity, and funding that we should be pursuing that would support your industry or interests related to activities in Department of Horticulture?
3. Are there creative models that we should explore to support tighter links between communities, industry, research, and teaching?
4. What infrastructure necessary to fully support research related to your community or industry interests is lacking at OSU? Do you have ideas for funding construction?
5. How do you rate our department's commitment to Diversity, Equity, and Inclusion (DEI) and what actions would you recommend for improvement?
6. How is our teaching program aligned with the needs of your community or industry interests? Are there opportunities for continuing education (certifications, non-degree certificates, specific courses, etc.) that OSU could provide?
7. How can we improve student recruitment and community engagement? How do you find information about OSU Horticulture, its research, teaching, and Extension activities?
8. Are you aware of fundraising opportunities related to your community or industry? This could include endowed positions, scholarships, gifts, etc. – include the scale and form of support you envision.