

**Crop Science Graduate Program
Oregon State University**

**ACTION PLAN
Addressing the 10-Year Review Assessment Report**

Revised January, 2017

Submitted by the:

Crop Science Coordinating Committee

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on behalf of the entire Crop Science Graduate Faculty

INTRODUCTION

The Crop Science Graduate Program underwent a 10 year review from May 24-27, 2015. Review team members and details of their visit schedule may be found in the Self Study Document submitted to the OSU Graduate School prior to the review. Subsequent to receipt of the reviewers report, an Action Plan was developed to guide program response to the review team's recommendations. The plan was submitted to the Graduate School six months following the external review. Following request by the OSU Graduate Council to include information on departmental strategic planning and goals, plans, and metrics for increasing student enrollment and diversity, this January 2017 revision of the Action Plan was prepared. It contains the review team recommendations, an approach for responding to those recommendations, followed by a description of goals, milestones, and metrics and a summary table. To facilitate managing faculty and staff responsibilities and actions, a Task Matrix details tasks, individuals responsible, targeted completion dates, and anticipated completion dates.

REVIEW TEAM RECOMMENDATIONS

Recommendations submitted by the review team were organized into six areas: (1) Strategic Planning, (2) Student Recruitment, (3) Funding and Support, (4) Quality of Program, (5) Infrastructure, and (6) Community Engagement. To address review team recommendations, goals, milestones, and metrics were developed for each recommendation area (Table 1). Note that text for each area is from the Review Team's report.

- 1. Strategic Planning.** *There is need for strategic planning within the program and department to develop priorities for facility improvement/repair/replacement, programs and future staffing plans for faculty and staff and address the learning outcomes (consider shortening the list and ensure that faculty know the outcomes and are adequately supported so that they can meet those goals).*
- 2. Student Recruitment.** *A more formal recruitment process is recommended, to increase the number and quality of students, including diversity. More complete records for tracking diversity and gender data are needed to determine possible bias of student acceptance.*
- 3. Funding and Support.** *More stable GTA and GRA funding sources need to be developed. Create new funding opportunities for tuition and stipends through diversification of funding mechanisms:*
 - *further fostering industry sponsorships or endowed fellowships,*
 - *writing training grants (tuition remission provided),*
 - *working with OSU Foundation and Graduate School to develop endowed fellowships,*
 - *developing the option for gifts or estate planning to be directed,*
 - *teaching e-campus courses to increase funding,*
 - *departmental prioritization of a few GTAs for recurring funding,*
 - *increasing grant support of graduate students by providing staff support (e.g. grant writer/editor) for existing, functional teams of faculty.*

Industry should lead the discussion with the OSU Foundation to develop sustainable funding targeting towards the graduate program. The Department Head, in consultation with key graduate faculty, should develop a strategy to be presented to individual commodity groups for their participation.

Incent and support existing teams of faculty in their pursuit of grants, such as by hiring short term grant-writers.

Enhance connection to and with faculty at off campus stations, and even other institutions (e.g. Washington State, University of Idaho, etc.) for more robust and competitive grant applications.

Securing future funding for this program in the future will depend on everyone, not just administration. From the President of the University to the Deans to the Department Heads and Faculty along with Industry, all are needed to actively work towards the funding of the program. This means each individual participant will be required to look outside of their comfort zone to keep programs funded.

- 4. Quality of Program.** *Off-campus faculty should be engaged to strategically add stand-alone courses to the Crops curriculum and to reduce the burden of graduate education felt by on-campus faculty. Consider development of non-traditional, short-duration courses at off campus centers or even Extension offices, making use of the special expertise at these locations. Consider taking efforts to have faculty lead cross-discipline discussions or courses developed along high profile issues in agriculture.*

Consider partnering with other institutions to provide additional courses via technology.

Remove faculty not actively mentoring graduate students from the list of graduate faculty, including retired faculty, and reassess metrics for better comparison.

Revise the list of graduate faculty to those who should be considered as fully engaged on a regular basis with the graduate program and with expectation of output in the form of student contact hours, publications, grants, and awards. For further confidence in the validity of the comparative metrics, confirm that aspirational institutions make similar distinctions.

Increasing the opportunity for scholarly interactions should be a goal of the Crop Science program; particularly with Soil Sciences students and faculty.

Graduate Faculty should have regular training on best practices for mentoring graduate students, with emphasis on timelines, deadlines, and submissions, and links to more information.

Self-recommendations regarding the creation of a coordinating group of faculty for the Crop Science graduate program should be taken with full knowledge and consensus of those affected.

- 5. Infrastructure.** *The Crops Building needs several improvements to support program excellence, including: (1) climate control, (2) backup power supply, and (3) ability to deliver large or heavy equipment to upper floors.*

Modernize existing greenhouses and consider expanding space available for graduate education.

Reduce time to reimbursement for graduate students or provide alternatives for payment of travel expenses if possible.

OSU faculty should pursue alternative solutions for short term housing for students at branch experiment stations by asking local industry to provide funding for hotel rooms or by housing them in their personal homes. Efforts to encourage graduate student involvement off-campus should also address the financial constraints related to reimbursement of travel expenses.

Improve reliability, access and support of distance learning technology.

- 6. Community Engagement.** *Local industry should be tapped to help train graduate students, especially about how industry partners with university in areas of: (1) how industry organizations work, (2) how grant programs work, (3) how USDA NIFA and other programs receive funding for grant programs, (4) how industry advocacy secures grant funding in US Congress and State Legislatures.*

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The department chair and/or graduate program director should facilitate interaction with industry annually, and train students to provide meaningful and timely information for stakeholders. The importance of good grant writing skills along with timely reporting will help secure additional grants for the future. All graduates going into the private or public sector need the ability to communicate effectively with industry as well as academia.

To address review team recommendations, goals, milestones, and metrics were developed for each recommendation area (Table 1).

Table 1. Goals, milestones, and performance metrics for addressing the May 24-27, 2015 Crop Science Graduate Program 10-year review.

Goals	Milestones	Metrics
1. Create a CSS Department strategic plan for facility management, undergraduate and graduate programs, curricula alignment, and priority staffing.	<ul style="list-style-type: none"> ▪ Department mission, vision and core values defined. ▪ Facility upgrades, program, and staffing needs defined. ▪ Faculty provided opportunity for engagement in the process of determining departmental goals. ▪ SP is aligned with like programs in other land grant institutions and identifies, with commodity stakeholder input, a unique marketing niche within our professional domain. 	<ul style="list-style-type: none"> ▪ Document draft distributed to working group for feedback. (Winter, 2017) ▪ Evaluation, discussion, input to the document (individual and collective). (Winter, 2017) ▪ Faculty, students, staff, and stakeholders are included in discussion for ownership and actions. (Spring, 2017) ▪ Department community approves and accepts the document and initiates actions. (Spring, 2017)
2. Develop a formal recruitment process to increase the number and quality of students and their diversity.	<ul style="list-style-type: none"> ▪ Recruiting at annual professional society conference. ▪ Specific faculty member is tasked with identifying organization and state or federal funds that will support a diverse body of students. This position includes a 40% service component that ensures career success while working with communities to increase recruitment of diverse students. ▪ Faculty recruit through national and international colleagues. ▪ Graduate student applications and acceptance are tracked to ensure gender and cultural diversity. ▪ Online Seed Science certificate program developed to meet information needs of a diverse student population. ▪ Graduate committee applies for a University Graduate Laurels Block Grant in conjunction with online certificate to provide for student tuition. 	<ul style="list-style-type: none"> ▪ Five potential students identified at ASA-CSSA-SSSA annual meeting. (Fall, 2017) ▪ Three additional sources of funding identified. (Winter, 2018) ▪ International collaborations identify 3 potential students. (Spring, 2018) ▪ One quarter of graduate faculty have funds available for GTA or GRA support. (Fall, 2018) ▪ Three graduate assistantships tied to e-campus Seed Science certificate program. (Winter, 2019) ▪ Comparator statistics compiled for program’s student diversity; target of top 25% of peer institutions.

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<p>3. Improve funding and support.</p>	<ul style="list-style-type: none"> ▪ Successful solicitation program developed with OSU Foundation to increase gifts and estate planning to fund GTAs and GRAs; targets include clientele groups, alumni, commissions, industry, and foundations. ▪ Additional e-campus courses developed to increase availability of existing offerings, expand offerings, and increase support for graduate students. ▪ Training grants written by graduate students to support tuition remission. ▪ Increased number of grant proposals that specifically include graduate student support. 	<ul style="list-style-type: none"> ▪ Gifts and estate planning directed to 3 GTAs and GRAs. (Winter 2018) ▪ Funds available for ½ of graduate faculty to support at least one GTA or GRA. (Spring 2018) ▪ Comparator statistics compiled for program’s funding; target of top 25% of peer institutions.
<p>4. Increase program quality.</p>	<ul style="list-style-type: none"> ▪ Coordinating committee created for the Crop Science graduate program involving faculty, staff, and students. ▪ Graduate faculty list revised to accurately reflect specific faculty member engagement. ▪ Graduate Program Learning Outcomes created and aligned with university GLOs and CSS undergraduate SLOs. ▪ Faculty CVs upgraded to university standards, including course SLOs / GLOs. ▪ Curriculum reviewed to identify gaps of courses available to cover disciplines, commodities, and professional skills needed. ▪ Curriculum compared with aspirational peer institution program curricula. ▪ Scholarly interactions increased among departmental students and faculty. ▪ “Essential readings” list developed for MS and PhD candidates. ▪ Off-campus faculty engaged to participate in team-taught and individual distance courses. ▪ Non-traditional, short-duration courses developed at off-campus research and extension centers. ▪ Faculty-led cross-discipline discussions/courses developed to address key/contentious issues in agriculture. 	<ul style="list-style-type: none"> ▪ Coordinating committee created and meeting regularly. (Initiated Fall, 2015; On-going) ▪ List of Crop Science graduate faculty updated; includes self-identified discipline(s), commodity affiliation(s), and student acceptance status. (Completed Winter, 2016; On-going) ▪ Program-level GLOs defined. (Developed Winter, 2016) ▪ Adoption of Digital Measures by the College for upgrading faculty CVs. (Fall, 2015; On-going) ▪ Course-level GLOs defined with appropriate language. (Initial discussion Fall, 2016; On-going) ▪ Map program-level GLOs with available courses and choose two assessment courses. (Initial discussion Spring, 2016; On-going) ▪ Regular attendance at departmental and program-level seminars by all graduate students. (On-going) ▪ Essential readings distributed to faculty and students and included in Graduate Handbook with accompanying assessment measures. (Spring, 2017) ▪ Two off-campus faculty participating in distance courses each year. (Spring, 2017) ▪ One off-campus short-course/workshop per year. (Summer, 2017)

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<p>4. Increase program quality (cont.)</p>	<ul style="list-style-type: none"> ▪ Peer / aspirational peer institutions contacted to explore providing additional courses via distance technology. ▪ Training provided for graduate faculty on best practices for mentoring graduate students (timelines, deadlines, and submissions, and links to more information). 	<ul style="list-style-type: none"> ▪ Key Issues discussion sessions held each quarter. (Fall, 2017) ▪ Two courses developed and offered jointly with other institutions. (Fall, 2018) ▪ Graduate Faculty Mentoring Handbook developed and reviewed with faculty. (Fall, 2018)
<p>5. Improve facilities and infrastructure.</p>	<ul style="list-style-type: none"> ▪ Communicate facilities maintenance and improvement needs to CAS and physical plant administrators (e.g. climate control, backup power supply, ability to deliver large equipment to upper floors). ▪ Modernize existing greenhouses and expand space available for graduate education. ▪ Develop student short-term housing options at branch experiment stations. ▪ Encourage graduate student involvement in off-campus research by providing departmental funds for travel expenses reimbursement. ▪ Improve reliability, access and support of distance learning technology. ▪ Reduced time for reimbursing graduate for travel expenses. 	<ul style="list-style-type: none"> ▪ Needs articulated and put in CAS queue. (Fall, 2015; On-going) ▪ Some improvements made. (Winter, 2016; On-going) ▪ Added to CAS and University-level facilities improvement queue. (Fall, 2015) ▪ Housing identified for 1 or more students at 3 branch stations by Fall, 2017. ▪ Department will provide statewide travel expenses for 3 students per term by Fall, 2017. ▪ Technology-assisted classrooms function without interruptions 90% of the time by Fall, 2017 (tracking system developed). ▪ Faculty instructed to provide a 3-week reimbursement turn-around by Fall, 2016 (tracking system developed).
<p>6. Improve community engagement.</p>	<ul style="list-style-type: none"> ▪ Engage local industry in graduate education; e.g. (1) industry culture, (2) how grant programs work, (3) how USDA NIFA and other programs receive funding for grant programs, (4) how industry advocacy secures grant funding in US Congress and State Legislatures. ▪ Department hosts “industry invited day” to showcase department activities (including graduate student presentations and posters) and to learn about industry needs. 	<ul style="list-style-type: none"> ▪ Short-term internships arranged for 3 students per term by Fall, 2017. ▪ Students routinely engaged in experiment station field days. (On-going) ▪ Students routinely interacting with statewide extension faculty. (On-going) ▪ Each student contributes to preparation of 1 grant application per year. (Faculty instructions provided Winter, 2017) ▪ Marketed event (university, college, O&E, industry, local community) held annually, with location rotated around the state. (Summer, 2017)

ACTION PLAN NARRATIVE

Goal 1: Create a CSS Department strategic plan for facility management, undergraduate and graduate programs, curricula alignment, and priority staffing.

The CSS Department Head is continuing work with the administrative team to develop a revised strategic plan. An initial draft has been developed (Fall, 2016) defining the departmental vision, mission, and goals and plans to strengthen undergraduate and graduate programs and increase their national rankings. This document will be reviewed and discussed during Winter, 2017 and finalized following the “Spring Conclave” which involves all CSS faculty, students, and staff.

Faculty will be incentivized to participate in workshops and small group and individual sessions with the Center for Teaching & Learning faculty and staff to develop and address student learning outcomes in Crop Science courses and in mentoring graduate students.

Goal 2: Develop a formal recruitment process to increase the number and quality of students and their diversity.

Historically, the primary recruiting activity for identifying new Crop Science graduate students has been the annual tri-society meeting (ASA, CSSA, SSSA). Those programs with funding for students provide information to potential students. Thus, recruiting has been done on a project-by-project basis as funds are identified for student support.

The challenge is that there are no departmental or college level scholarships or assistantships offered, except for GTAs needed to provide assistance to large enrollment services courses (primarily the undergraduate Soils class).

Nevertheless, additional venues and approaches will be explored, including discussions with clientele groups, alumni, commissions, and foundations to increase available funds for enhancing recruitment. In particular, some units in the college have improved student cohort diversity by creating and filling a faculty position that includes a significant service component (40%). Such a non-traditional position would ensure that the faculty member hired could achieve tenure *because of* the outreach to traditionally underserved communities, and by being active in the professional societies in roles that increase the national perception of our department as an open and welcoming circle and so draws diverse students to our program.

Goal 3: Improve funding and support.

Related to Goal 2, Crop Science faculty, with leadership from the Department Head, will explore various options for improving funding for graduate students. These include identifying university and professional association scholarships, working with the CAS and University Foundation offices, and encouraging faculty to include GRAs on all grants that allow student support.

Goal 4: Increase program quality.

Each recommendation listed by the review team for improving the program's quality has been circulated to the entire graduate faculty and discussed by the department's administrative team. Specific courses and instructors will be identified and developed to strengthen the program, including short-duration off-campus courses and linkage with e-campus offerings.

High profile issues in agriculture include water availability and quality, sustainable nitrogen resources (e.g. biologically fixed nitrogen through legumes), climate adaptation of cropping systems, and food security. Linkage with faculty in other agricultural sciences departments, colleges, and institutes will be explored to effectively address important agricultural and societal issues pertaining to the collective scientific expertise of these units.

Goal 5: Improve facilities and infrastructure.

Building improvements and greenhouse/phytotron facilities have been discussed with college and physical plant personnel to determine an appropriate course of action and potential funding sources.

Accounting issues have been discussed with major professors to ensure students do not face financial hardship for project-related expenses. Housing at branch stations have been discussed with college and university administrators and station superintendents to determine what can be done to allow greater integration of on- and off-campus research activities. Technology improvements are being addressed with college IT unit and CAS administrative staff.

Goal 6: Improve community engagement.

Continuing discussions are being arranged with industry/commodity commission representatives to determine an effective structure for sharing ideas for research, teaching, and extension needs and communicating results of research project and extension training opportunities. Student short-courses for grant-writing and effective communication skills are available from several university-level offices. More specific, agriculture-related workshops are being explored.

DEPARTMENTAL ORGANIZATION

Coordinating Committee. To address the review team’s recommendations and coordinate the Crop Science Graduate Program response, a coordinating committee was created in Winter, 2016 and has been meeting regularly since then. The team consists of a coordinator, CSS office staff, 3 additional graduate faculty, a graduate student, and the department head.

Coordinator: David B. Hannaway

Office Staff: Kristin Rifai and Emmalie Goodwin

On-Campus Graduate Faculty: Sabry Elias, Garry Stephenson

Off-Campus Graduate Faculty: Stephen Machado

Graduate Student: Ryan Graebner

CSS Department Head: Jay Noller

Task Matrix. To identify and track progress on review team recommendations and other graduate program plans and activities, a task matrix has been developed listing each of the tasks with each of the recommendations.

Recommendation	Task	Person/Group Responsible	Targeted Completion Month (2017)
1. Strategic Planning	<ul style="list-style-type: none"> • Develop/Update CSS Strategic Plan • Discuss/Revise Student Learning Objectives 	<ul style="list-style-type: none"> • Jay Noller, Andy Hulting, and Sujaya Rao with CSS faculty • Curriculum Committee with Kay Sagmiller (Center for Teaching and Learning Director) 	<p>March</p> <p>April</p>
2. Student Recruitment	<ul style="list-style-type: none"> • Review/revise recruitment strategies • Chart admission process • Create data needed list and compile (diversity & gender) 	<ul style="list-style-type: none"> • Jay Noller, Andy Hulting, and Sujaya Rao • Kristin Rifai & Emmalie Goodwin • Kristin Rifai & Emmalie Goodwin with student clerks 	<p>April</p> <p>February</p> <p>February</p>
3. Funding & Support	<ul style="list-style-type: none"> • Develop more stable GRA/GTA support: <ul style="list-style-type: none"> ○ Identify university, national, foundation scholarships ○ Meet annually with alumni, commissions, foundations ○ Establish Dept./CAS merit scholarships ○ Provide incentives to faculty to support more students on 	<ul style="list-style-type: none"> • Department Head Coordination: <ul style="list-style-type: none"> ○ CSS Student clerks with Kristin Rifai direction ○ Jay Noller to organize; Coordinating Committee to meet ○ Jay Noller with CAS administrative team ○ Jay Noller 	<p>November announcement</p> <p>Continuing activities</p> <p>Quarterly meetings</p> <p>November</p> <p>On-going April</p>

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	tuition-paying grants		
4. Quality of Program	<ul style="list-style-type: none"> Review curriculum & identify needed courses Develop plan for who will develop and teach needed courses 	<ul style="list-style-type: none"> CSS Curriculum Committee, CC, & all Graduate Faculty Jay Noller in consultation w/ faculty 	<p>March</p> <p>June</p>
5. Infrastructure	<ul style="list-style-type: none"> Address physical plant needs (climate control, power, elevator) Increase branch station housing for graduate students and faculty Improve technology reliability 	<ul style="list-style-type: none"> CAS Administration with physical plant personnel CAS AES Administration with station superintendents CAS IT unit 	<p>Some resolved, others Summer</p> <p>Summer</p> <p>Summer (no classes in session)</p>
6. Community Engagement	<ul style="list-style-type: none"> Improve graduate student knowledge of industry organizations and grant funding 	<ul style="list-style-type: none"> Graduate CC to develop strategy for courses & workshops and attendance at commodity meetings Producer-Professor (& Student) Exchange Program 	<p>September (graduate handbook)</p> <p>January announcement / on-going</p>