June 20, 2019

TO: James Henderson, Interim Provost  
Bill Karpus, Dean of the Graduate School

FROM: Kathryn VandenBosch, Dean, CALS

CC: Natalia de Leon, Chair, Plant Breeding & Plant Genetics Program  
Jocelyn Milner, Director, Academic Planning and Institutional Research  
Nicole Weissinger Academic Planner, APIR  
Karen Wassarman, Associate Dean for Academic Affairs, CALS

RE: Program Review of Plant Breeding and Plant Genetics MS-PhD

We are pleased to report that the College of Agricultural and Life Sciences has completed the first stages of the program review for the Plant Breeding and Plant Genetics graduate programs (program code 794). The self-study prepared by the program and the report of the review committee are attached to this memorandum.

The CALS APC met on Feb 5th and again on Feb 19th to hear from Prof. Brian Kirkpatrick, who chaired the review committee, and from Prof. Natalia de Leon, the chair of the Plant Breeding & Plant Genetics program. After discussion, the APC voted unanimously to accept the review as complete, with comments and recommendations as outlined below.

As noted by the review committee and echoed by the APC, the graduate programs in Plant Breeding & Plant Genetics are strong, recruiting top students and placing them in professional positions after degree completion. Some of the highlights of the program are its strong reputation, the satisfaction of its students, and how highly sought after their students are for career opportunities. Other strengths noted included the productivity of the faculty, the diversity of species being studied, and connections to industry.

The program review and APC noted a few areas for future attention as well.

- It was noted that the preliminary exam was not uniform among students, and recommendations were to address this issue. The program has taken steps to develop more uniform practices, although final decisions await an annual faculty meeting for the vote. Perhaps for critical decisions such as this one, ad hoc faculty meetings could be called.
- Student stipends are not uniform, as funding sources appear to dictate funding levels. The program is encouraged to look closely at this practice and examine whether more equity between students in the same program is warranted.
- Admission into the program is through “direct admit“. Development of policy for students who wish to change labs is encouraged, as well as to consider whether there could be any
mechanisms to allow rotations for students wishing to join the program, but unsure of their specific interests.

- Required courses appear to have quite low enrollments. Given the collaborations around new programs in plant sciences across the college, this would be a good time to investigate partnering with other programs around required courses as well.
- The assessment plan appears to be still in planning stages. It is expected that the program will be performing full assessments within the next couple years.
- The PhD minor in Plant Breeding & Plant Genetics appears to be rarely used (4 in the past 10 years) and was not discussed in the self-study or review. If the program wished to maintain this minor, they must provide a justification. If not, the program should work with the college to discontinue the PhD minor.

As with other interdisciplinary programs in CALS, this program was strongly encouraged to consider administrative alignment with a department, rather than through the college as currently structured, as most decisions about funding and instruction priorities are at the department level. Although program leaders appear to think alignment with a department will be detrimental to the interdisciplinary nature of the program, it was pointed out that there are several interdisciplinary, cross-department and even cross-college graduate programs that maintain their identity through strong governance that is separate from the Department. We encourage the participating departments to continue to consider a departmental home for the Plant Breeding and Plant Genetics program. Such discussion would be timely given the changes occurring in the college, such as those to form a collaborative that includes many of the plant disciplines and is likely to include most of the Plant Breeding & Plant Genetics faculty.

We look forward to working with campus leadership, GFEC, and the UAPC on the next stage of this review.
Plant Breeding and Plant Genetics Review Committee Report

The Plant Breeding and Plant Genetics (PBPG) Review Committee was charged with reviewing the PBPG program to assess how well the program is fulfilling its mission of teaching and learning. The review committee met with the outgoing chair, incoming chair, faculty, graduate students and administrative staff of the PBPG program in July and August of 2018 in preparing this report. Substantial numbers of faculty/staff and graduate students were present at their respective meetings with the committee and enthusiastically shared their points of view.

The committee found the PBPG program to be highly effective in training graduate students in the field of plant breeding as evidenced by the strong demand for graduates of the program. Specific strengths and weaknesses of the program are addressed below.

How does the mission of the program fit with the home department/unit, the school/college, and the mission of the university? PBPG students are primarily in the departments of Agronomy, Horticulture and Plant Pathology, and the research they conduct and the training they receive is consistent with the land-grant mission of the departments, CALS and the university, i.e., to generate new knowledge through scholarly, research and creative endeavors and serve society.

How well is the academic program functioning? Is there a sufficient number of students and are the students of high caliber? PBPG competes effectively with other leading programs (Minnesota, Cornell, UC-Davis, Michigan State, North Carolina State) for the most highly qualified incoming graduate students. The number of students in the program is sufficient for maintaining diverse interaction and training opportunities, though given that this is a graduate program and graduate classes are more specialized, class enrollments are relatively low (i.e., in the teens). Concern was expressed by the faculty over the inherent issue of the value of classes being assessed by metrics evaluating teaching productivity based on class enrollment and student credit-hours that are more appropriate for evaluating large undergraduate programs.

The large number of applicants relative to the available opportunities and the ability of the PBPG to effectively compete with other programs is a strength. A minor weakness is the inability of students to rotate between labs before selecting a major professor. In some cases prospective students have this opportunity at competing universities; however, the funding mechanism in PBPG is predominantly from PI support rather than training grants, so direct offers from PIs are the norm. The faculty also felt that most entering students have a clear interest regarding specific plant species and faculty expert so that lab rotation would have limited value and would also delay the start of a student’s thesis work. Instances of student/mentor conflict such that relocation to a new lab/mentor was desired have been infrequent (three occurrences in the past ten years) and no systematic intervention seems warranted.

Should the program be taking any steps to improve the quality of its educational mission? Are student learning goals clear? A variety of coursework options are available to students in the PBPG program. In general the students expressed satisfaction with the curriculum and class options, though there was a suggestion that there are cases of subject matter redundancy between classes that could be eliminated by better coordination between instructors. No learning
assessment plan is currently in place, though one is actively under development. Individual student progress is monitored by committee meetings that occur at mileposts within the program of study. There is no requirement for an annual meeting of student and committee, but the aforementioned meetings occur at a frequency that would approximate this. However, it was estimated that approximately 20% of students do not end up having yearly committee meetings. Students are part of both the PBPG program and a department, most commonly Agronomy or Horticulture. Both the program and the department provide student manuals but the guidelines or directives in those are not always consistent. These documents and the underlying policies should be reviewed to ensure that contradictory information is not being provided to students.

The review committee has some concern about lack of structure and/or clarity of expectations in the PhD preliminary examination. Our understanding is that only an oral exam is given, and that it includes a discussion of the proposed research project(s) plus time for general knowledge questions. While it is the prerogative of the department or program to establish the format of the preliminary examination, we encourage PBPG leadership to develop a rubric and/or scoring sheet that committee members can use to document the performance of each student, as well as a clearly stated policy regarding the process and timeline for repeating the examination in the event of failure.

**What is the standing of the program within its disciplinary base?** In the assessment of the faculty, the program is perceived to be one of the top four programs in the country. A strength of the program relative to others is the diversity of plant species studied. Multiple students commented that one of the reasons they chose the program for their studies is because it has an excellent reputation.

**How effectively does the program satisfy its outreach and research missions?** The program is effective in its outreach and research work. The program has active communication with industry and students from the program are highly sought after. Alumni working in the private sector are frequently present at field days or other program events, providing opportunities for communication. A challenge mentioned is the recruitment of students to the private sector prior to completion of the research program.

**Challenges for the program to address.** While the issue of losing some prospective graduate students to other programs because of the lack of a lab rotation for incoming students was generally dismissed by faculty because of the means of support (direct admits by faculty) and the typically focused interest of incoming students, if training grant funding could be obtained (e.g., USDA National Needs Fellowships) that could provide a mechanism to support lab rotation for a small number of students. In addition to maintaining competitiveness with other programs, this could also be beneficial in recruiting underrepresented minority students. Given the strength of the program, pursuit of training grant opportunities is encouraged.

A related issue was raised by both faculty and students, that being graduate student stipends. Faculty expressed concern about the stipend being below that offered by peer institutions and, in some cases, individual faculty supplementing the base stipend. Graduate students recognize that there is not uniformity in the stipends received and out of concern for equity would like to see a
more transparent and consistent policy in this regard. It would be advisable for the program to develop a clear policy in this regard.

The facilities at the Arlington Research Station were mentioned as a concern by the students, specifically saying they were sufficient but in need of improvement to industry standards. A specific item mentioned by several were the seed storage facilities. The former Monsanto facility (WCIC) was viewed as a good addition to capabilities. A common concern that was raised by the students was transport to and from these facilities; it was stated clearly that getting to WCIC or the research stations and getting around the research stations was a challenge. For graduate students who would like to mentor undergraduate researchers, their opportunities to do so can be limited as many undergraduates cannot get back and forth to research stations. It was not clear what, if any, support was provided by the program for transportation. Given the central role of field work in the research programs of the students, organizing and providing support for travel seems imperative. A plan to address this need should be developed.
April 19, 2018

Professor Phil Barak, Soil Science
Professor Lara Collier, Pharmacy (GFEC Representative)
Professor Brian Kirkpatrick, Animal Science (Chair)
Professor Kent Weigel, Dairy Science

Sent electronically

Dear Professors Barak, Collier, Kirkpatrick, and Weigel,

Thank you for agreeing to serve on the committee reviewing the academic programs in Plant Breeding & Plant Genetics (MS, PhD, and Doctoral Minor). The committee is chaired by Brian Kirkpatrick.

We expect your work to take place over the next few months and would appreciate receiving your report by November 1, 2018. We will forward your final report to the program chair to review for errors of fact and then to the CALS and University Academic Planning Councils as well as the Graduate Faculty Executive Committee.

The self-study document prepared by the program will serve as your main reference for organizing the review. The committee should work with the program chair, Michael Havey, to coordinate meetings with the program’s faculty, staff, and students and to tour the facilities, if appropriate.

The chair of the committee will be responsible for scheduling and convening committee meetings, setting the meeting agendas, making specific assignments to committee members, getting feedback from the committee, overseeing the writing process, and submitting the final report to academicaffairs@cals.wisc.edu with attention to Nikki Bollig and Dick Straub.

The review committee final report should provide a summary of the programs’ strengths and challenges as well as recommendations for improvement or focused attention.

The most important question for the committee to consider is the most general: how well is the program fulfilling its mission of teaching and learning? Are there areas that are exemplary? Are there areas that need improvement? If the latter, do you have particular recommendations for steps the program should take to strengthen its performance? Paying attention to the following particular issues may help you address the more general questions:

1. How well is the academic program functioning? Is there a sufficient number of students in each program and are the students of high caliber? Is student advising functioning well?
2. Should the program be taking any steps to improve the quality of its educational mission? Are student learning goals clear? How is learning evaluated and used for program improvement? How well does the learning assessment plan measure student achievement of learning goals? Are the curricula clear and appropriately designed to achieve the learning goals?
While the focus for the review is the academic programs, it may be useful to briefly address the following questions that provide context surrounding the functioning of the academic program:

3. What is the standing of the program within its disciplinary base and within the University of Wisconsin-Madison? Is it in need of strengthening? If so, what can be done to improve its standing?

4. How effectively does the program satisfy its outreach and research missions, if appropriate? Are resources deployed in a way that satisfies its stakeholders?

5. Is the climate in the program one that encourages productivity and feelings of inclusiveness by staff, students, and faculty?

6. Are there issues concerning the program’s functions or interactions within CALS that should be considered as part of the College’s ongoing strategic planning process?

Please do not hesitate to contact me or Nikki Bollig, Assistant Dean for Academic Programs and Planning, if you have any questions as you proceed. We will represent the dean’s office to assist you in the review process.

Thank you again for taking time on this important task. You are performing a valuable service to the department and CALS, and we all appreciate your efforts. I look forward to seeing your final report.

Sincerely,

[Signature]

Richard Straub
Senior Associate Dean

cc: Nikki Bollig
    Irwin Goldman
    Michael Havey
    Kathryn Jones
    Sarah Kuba
    Jocelyn Milner
    Parmesh Ramanathan
    Kate VandenBosch
**Self-Study for Plant Breeding and Plant Genetics (MS and PhD)**

Date submitted: March 1, 2018

Primary Contact: Michael J. Havey, Chair

Department(s)/Academic Unit(s): Plant Breeding and Plant Genetics (PBPG) is an interdepartmental graduate program with 36 faculty in the departments of Agronomy, Biochemistry, Biostatistics & Medical Informatics, Botany, Entomology, Genetics, Horticulture, Plant Pathology, and Statistics. A list of PBPG faculty, home departments, and links to their websites is provided as Appendix I.

School(s)/College(s): CALS

A. **Response to previous program review recommendations**

   Summarize recommendations from the previous program review (conducted in 2009) and how they were acted upon.

1) Permanent Administrative Home: In order to maintain your high standards of success, the program may want to consider ways to provide more dedicated administrative support to the program’s operational needs. This is often more necessary with interdisciplinary programs than departmentally-based programs. The rotating structure of administrative responsibilities and/or assigned tasks across multiple departments does not seem to be the optimal model to sustain success as well as provide continuity and consistency needed for program efficiency. Associate Dean Donna Paulnock would be pleased to follow-up on this issue with you and others from the program. Please feel free to contact her if you would like to discuss possible strategies.

   **Response:** The chair met with Dean Paulnock regarding a permanent administrative home for PBPG, and explained that the majority of graduate students in PBPG are housed in the Horticulture/Moore/Plant Sciences complex. The program’s administrative home rotates between the Departments of Agronomy and Horticulture in this building complex, depending on the academic department of the chair. Presently Ms. Kathryn Jones serves as the student services coordinator for PBPG within the Department of Horticulture.

2) Admissions: Attention seems warranted with respect to the structure of admissions in the program. One key area for consideration is whether admissions decisions made by individual faculty members are the most appropriate mechanism for student recruitment, given the chance of advisor/advisee mismatches and the recurring issue of whether the program or the individual faculty member bears ultimate responsibility for support of an entering student. Perhaps changes have already been implemented or are underway, but “direct admit” admissions is no longer viewed as an acceptable practice and should be replaced with more contemporary practices that allow applicants to be reviewed by an admissions committee. Taking these concerns into account, it was noted that it might be useful for the department to form two separate committees, one
to oversee admissions and recruiting practices and another to monitor student progress. 

*Response:* In a meeting with Dean Paulnock, the chair explained that we generally host 12-15 PBPG applicants for interviews each year. If we have fellowships to offer, such as from the Science and Medicine Graduate Research Scholars Program (SciMed GRS) or corporate gifts, a committee meets to select students for the fellowships. These fellowship awardees rotate through at least three labs during their first semester. If a faculty member directly recruits a student and offers RA support, then the professor contacts the PBPG chair to recommend admission to the graduate school. Students who accept an RA from a specific professor do not rotate, but immediately join that professor’s lab. PBPG faculty strongly support direct offers of RAs to prospective students.

3) Creation and Consistent Implementation of a Student Handbook: The program must develop and implement consistent graduate procedures related but not limited to program requirements, student appeal process, process for finding labs, maintenance of satisfactory progress, and appropriate time to degree. These procedures and processes must be implemented equitably and communicated to students and their faculty mentors through an easily accessible graduate student handbook (ideally made available online).

*Response:* The chair appointed a committee to develop a handbook for MS and PhD students and these are posted on the PBPG website at [http://plantbreeding.wisc.edu/current-students/program-requirements/](http://plantbreeding.wisc.edu/current-students/program-requirements/).

4) Graduate Student Community: The review revealed that student program identity was strong for Agronomy/Horticulture students, but not for the program as a whole. The program should work on all levels to cultivate graduate student community across the MS and PhD levels and across the various interdisciplinary disciplines. Academic community can be created through specific curricular developments, through regular program colloquia, or in other informal means such as through dissertation support groups, reading groups and the like.

*Response:* PBPG graduate students are the largest group involved in the Plant Science Graduate Student Council (PSGSC). PSGSC was founded in 2000 by combining the graduate student councils of the Horticulture Department, the Agronomy Department, and the Plant Breeding and Plant Genetics (PBPG) program. The PSGSC was created to foster enhanced communication and promote more social interaction among the graduate students of horticulture, agronomy, and PBPG. Since then, additional plant science-related graduate departments and programs have been incorporated into the council, including Plant Pathology, Botany, Forest and Wildlife Ecology, and Agroecology. PSGSC hosts a weekly journal club, professional development events and workshops, an annual Plant Sciences Symposium, and regular social events. We also launched an invited seminar series, with one major seminar in the fall and spring semesters, and invite speakers from the public and private sectors. These seminars are advertised to the university community.
5) Career Guidance and Post Graduate Assessment: Finally, it seems it would be beneficial for the program to conduct a more comprehensive analysis of career opportunities for future graduates of the program and to monitor their career achievements and placement following degree completion. The program and its graduates would benefit from a more informed understanding of the wider spectrum of career possibilities available.

Response: Graduate students in PBPG have numerous opportunities to interact with visitors from the private sector (primarily seed companies and NGOs) and to attend national and international meetings. These interactions provide the students opportunities to learn about employment opportunities. We also offer the students opportunities to travel to corporate and, in some cases, international research centers to visit research facilities and learn about employment opportunities.

B. Overview of the Program

- Provide current degree/major requirements as approved.
  - **MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT**: 30 credits for MS; 51 for PhD.
  - **MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT**: 16 credits for MS; 32 for PhD.
  - **MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT**: Half of degree coursework must be in graduate-level coursework.
  - **PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS**: With program approval, students are allowed to count no more than 9 credits of graduate coursework from other institutions. coursework earned five or more years prior to admission to PBPG is not allowed to satisfy requirements.
  - **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE**: Credits from a UW–Madison undergraduate degree are not allowed to count toward the degree.
  - **PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**: With program approval, students are allowed to count no more than 9 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to PBPG is not allowed to satisfy requirements.
  - **CREDITS PER TERM ALLOWED**: Up to 15 credits
  - **PROGRAM-SPECIFIC COURSES REQUIRED**: Core curriculum is provided as Appendix II and is on the PBPG website (http://www.plantbreeding.wisc.edu/).
  - **DOCTORAL MINOR REQUIREMENTS**: The PBPG program allows either a distributed minor or specific minor using requirements of minor department or program.
  - **OVERALL GRADUATE GPA REQUIREMENT**: 3.00 GPA required
  - **OTHER GRADE REQUIREMENTS**: Students must earn a B or above in all core curriculum coursework.
  - **PROBATION POLICY**: The status of a student can be one of three options:
- **Good standing** (progressing according to standards; any funding guarantee remains in place).
- **Probation** (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
- **Unsatisfactory progress** (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).
- **ADVISOR / COMMITTEE**: Students are recommended to convene a yearly progress report meeting with their thesis committee.
- **ASSESSMENTS AND EXAMINATIONS**: A formal M.S. or PhD thesis is required.
- **TIME CONSTRAINTS**: PBPG students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.
- **LANGUAGE REQUIREMENTS**: No language requirements.

- How does the mission of the program fit with the home department/unit, the school/college, and the mission of the university? The majority of PBPG students are in Agronomy, Horticulture, and Plant Pathology, and conduct research consistent with the missions of these home academic departments, as well as the college and university.

- What are the approved learning goals for each of the programs being reviewed

**MS Degree:**
- Articulates the theories, research methods, and approaches to inquiry in the field of plant breeding and plant genetics.
- Identifies sources and assembles evidence pertaining to questions in the field of plant breeding and plant genetics.
- Demonstrates understanding of the primary field of study in a global context.
- Selects and utilizes the most appropriate methodologies and practices.
- Synthesizes information pertaining to questions in the field of plant breeding and plant genetics.
- Communicates clearly in ways appropriate to the field of plant breeding and plant genetics.
- Recognizes and applies principles of ethical and professional conduct.

**PhD Degree**
- Articulates research problems, potentials, and limits with respect to knowledge within the field of plant breeding and plant genetics.
• Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of plant breeding and plant genetics.
• Creates research that makes a substantive contribution.
• Demonstrates breadth within their learning experiences.
• Advances contributions of the field of plant breeding and plant genetics to society.
• Communicates complex ideas in a clear and understandable manner.
• Fosters ethical and professional conduct.

• What is the program’s structure? For example, is it a single program or does it have informal tracks/concentrations, formal named options or certificates? 
  
  **PBPG is a single program with uniform requirements for all students.**

• Describe any substantial and structured collaborations with other programs, such as dual, double or joint degrees and benefits of these arrangements? 
  
  **There are no formal collaborations with other programs; however many PBPG students complete minors in Plant Pathology or Statistics.**

• If the program is not the only program within the home unit, what are the other programs? If there are several programs in the same academic home, how are they related to one another and what impacts do they have on student learning? 
  
  **The departments of Horticulture and Agronomy have graduate programs, and graduate students in these departments interact with PBPG students and are members of the Plant Sciences Graduate Student Council.**

• How do the program’s governance model, program committees, and membership criteria lead to active faculty engagement? How does succession planning work for leadership? 
  
  **The PBPG program has four standing committees: Outside Speaker, Curriculum, Endowment, and Website. Ad hoc committees are appointed as necessary (e.g. for this review and specific events such as the 50th Anniversary of PBPG). These committees report to the chair and make formal reports to the faculty and students at an annual meeting. Recommendations from committees are discussed and voted on by faculty. The chair generally serves for 5 years. When a new chair needs to be identified, a faculty committee identifies candidates and a majority vote by PBPG faculty is required for election. The administrative home of the PBPG program moves to the home academic department of the chair.**

C. Program Assessment and Evaluation

• What has the program learned through assessment of learning goals? Provide key evidence. What changes have been made as a result of assessment? 
  
  **The PBPG Curriculum Committee has been working on an assessment plan and it was discussed at our annual meeting in January 2018. Proposed rubrics and surveys were**
discussed at the meeting and the committee is making changes to the plan. After the committee reaches a final recommendation, there will be an open discussion by PBPG faculty and students, and the final assessment procedure will be voted on by faculty.

• What are the emerging changes in the discipline? What is being done and can be done to move forward and seize emerging/future opportunities? *Experience with statistical analyses of large datasets is becoming commonplace. Many PBPG students gain experience with large amounts of data in their thesis research.*

• If relevant to the program, how do leaders within industry, business, government, or non-profit organizations become involved in offering advice and perspectives on the program and the curriculum? *We have sought input from stakeholders in the private sector regarding the PBPG curriculum and they have been supportive of our course offerings and requirements. However they have recommended additional coursework in business or human resources, which the PBPG faculty have been reluctant to require due to excessive coursework requirements.*

D. Recruiting, Admissions, and Enrollment

• Are admissions practices and enrollment levels consistent with plans, program resources, and career outcomes? *PBPG has no formal budget and the home department of the Chair provides administrative support. The program receives annual funding from the Graduate School which is primarily used for recruitment and support of in-coming graduate students. Essentially all PBPG graduates have gained employment in the public or private sectors. Over the last 10 years, the majority of graduates work in the private sector for seed companies or research entities.*

• What effort has the department/academic unit or program made to enhance student diversity (traditionally underrepresented groups in field)? Have those diversity efforts been successful? *Our faculty and students participate in minority recruitment fairs, such as the Meetings of the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), USDA minority summer intern program, BOPs program, and the Integrated Biological Sciences Summer Research Program. Since our last review in 2009, three graduate students from targeted minority populations were supported by the SciMed(GRS) program and successfully completed Ph.D. degrees: Angel R Del Valle-Echevarria (2014), Axel Ramirez-Madera (2016), and Pamela Tas (2016). Presently there are four minority students currently enrolled in the PBPG PhD program.*

• If applicable, what do trends in application volume, admits, and enrolled students signal about program strength? For graduate programs, does the program directly admit students? If so, how does the program ensure student integration and success beyond the admitting advisor?
Because the vast majority of PBPG students are supported by RAs, most students are directly admitted by faculty. Fellowship winners or students with their own support (such as foreign students) are provided the opportunity to rotate through labs during their first semester. The PBPG program has maintained an average of 48 students over the last 20 years even though the cost of RAs has risen significantly, an objective indicator of the success of faculty to bring in outside funds. New students become involved with the Plant Sciences Graduate Student Council which provides a community outside of the mentor’s lab.

E. Advising and Graduate Student Support

• How are advisors assigned and matched to students? How many advisees does each faculty member have?

Because the vast majority of PBPG students are supported by RAs, PBPG helps with student recruitment and faculty members make direct offers. Faculty who are mentoring PBPG students have on average 2 to 3 graduate students at any given time. Half of PBPG faculty do not serve as major professor of a PBPG student at this time; however the majority serve on student committees.

• How often are program contacts and student handbooks updated and made available online? Is the handbook inclusive of program learning goals, program requirements as well as a program-level grievance procedure?

Updates occur annually, program requirements, learning goals and grievance policies are described in the handbooks (http://plantbreeding.wisc.edu/current-students/program-requirements/).

• How are students transitioned between advisors when personnel changes?

This rarely occurs; however if a faculty member leaves the university the chair works with the student to find another mentor or when the student is near completion of the degree, the chair may assume mentorship of the student.

• How often and in what manner is satisfactory progress monitored? Do students receive written annual feedback on their academic progress?

Progress is monitored by at least annual committee meetings and feedback is provided orally at the meeting. We do not provide written feedback to the student unless there is a performance problem.

• How is the impact of advising assessed?

The student’s committee is responsible for monitoring progress of the student, and if advising is problematic the chair meets with the faculty member to discuss responsible mentorship.

F. Program Community and Climate
• Discuss efforts to welcome, orient, and retain new students. What is offered to connect students within the program, as well as with the greater campus community?

At the beginning of each fall term, there is an orientation held for new students who started in the summer or fall and are advised by Horticulture or Agronomy faculty members. Kathryn Jones and Joanna Schuth (Graduate Coordinator in Agronomy) put together the orientation and invite faculty and program chairs, administrative staff from both departments, and members of the Plant Sciences Graduate Student Council (PSGSC) to introduce themselves and discuss their roles in the departments/programs. For students that start in the spring, Kathryn Jones does a 1:1 orientation with the student. Both orientations discuss program/department contacts, campus resources (e.g. UHS), Steenbock Library resources, benefits, funding, enrollment, professional development, etc. One primary way that graduate students connect with others is through the UW-Madison Plant Sciences Graduate Student Council (PSGSC). The Plant Sciences Graduate Student Council (PSGSC) was founded in 2000 by combining the graduate student councils of the Horticulture Department, the Agronomy Department, and the Plant Breeding and Plant Genetics (PBPG) program. The PSGSC was created to foster enhanced communication and promote more social interaction among the graduate students of horticulture, agronomy, and PBPG. Since then, additional plant science-related graduate departments and programs have been incorporated into the council, including Plant Pathology, Botany, Forest and Wildlife Ecology, and Agroecology. PSGSC has a weekly journal club, regular social events, and organizes an annual plant sciences symposium.

• What efforts are there to enhance faculty/staff representation of traditionally underrepresented groups in the field? How does the unit rate its ability to attract and retain a diverse faculty/staff?

We invite for interviews minority students with interests consistent with faculty research programs, and actively apply for funding from the SciMed(GRS) program. As stated earlier, our faculty and students attend scientific conferences for minority students, such as SACNAS, to interact with undergraduate students interested in the plant sciences. Because PBPG is a graduate program, faculty are recruited by academic departments and may join PBPG after hiring by academic departments.

G. Degree Completion and Time to Degree
• Use institutional data sources to examine and evaluate progress to degree metrics and comparison to peers.

Time to completion of the PhD degree averages approximately 4.5 years. This is a relatively short time and is primarily because almost all PBPG students are supported by RAs. Students begin their research immediately upon matriculation and are expected to make consistent progress towards research goals.

• What efforts have been made to improve progress to degree performance and completion rates?

The PBPG program has an overall graduation rate of over 80%.
• Do students from educationally underrepresented groups (racial/ethnic minority, low-income, first generation in college) succeed in the program at rates comparable to other students? How are equity gaps addressed?

  Students from these targeted groups have the same graduation rate as for other PBPG students.

H. Career Services and Post-Graduation Outcomes
• What do students do after graduation? How does the program prepare them for careers or further academic training?

  Approximately 65% of recent PBPG graduates are employed in the private sector, primarily in seed companies and NGOs. The remaining 35% are continuing graduate studies, doing post-docs, or working in the public sector.

• What career resources are available to students?

  Graduate students are introduced to career resources at orientation and receive regular emails regarding professional development events and workshops. Students are encouraged to participate in professional development events and workshops held by the Graduate School, DELTA, CALS Equity and Diversity, etc. Students also participate in many professional development events and workshops hosted by the Plant Sciences Graduate Student Council (PSGSC). For example, PSGSC has worked with CALS Career Services to sponsor a CV Workshop. Every year the PBPG program and PSGSC organize visits to research stations of private companies where students learn about the types of research underway and employment opportunities.

• What is the range of student career outcomes, and are these outcomes consistent with program goals? Does the program track the career progression of its graduates?

  The PBPG program has an excellent record of employment for all graduates. There are many career opportunities in the private sector and essentially all PBPG graduates find employment in our field. Examples of employment of recent graduates include NSF Postdoctoral Research Fellow at University of Missouri, Postdoctoral Researcher at the University of Hawaii, Senior Trial Officer at Syngenta, Senior Agronomist at Sterman Masser, Inc., Field Biologist for Dow/AgroSciences, and Plant Breeders for the Land Institute and Seed Companies Advanta, Bejo, Enza Zaden, Hazera, and Syngenta.

I. Overall Analysis of the Self-Study and the State of the Program:
• Primary program strengths:
  • The PBPG program has maintained enrollment of approximately 50 graduate students over the last 25 years, in spite of dwindling resources and loss of faculty. The program continues to place essentially all graduates into positions in our area of expertise, and with competitive salaries. Courses in the core curriculum are routinely taught allowing students to complete coursework on a timely schedule. We get over 100 applications for graduate study each year and attract top-notch applicants to our program.
• Primary program challenges:
  ▪ Under the university’s new budget model in which dollars follow instructor credits, it will become increasingly difficult to teach graduate-level classes with relatively few students. This will likely be deleterious for our graduate program.
  ▪ Continued loss of faculty will make it increasingly difficult to offer coursework and research experiences across the breadth of sciences that impact plant improvement.
  ▪ Reductions in formula funding (such as Hatch) and federal competitive grants reduce the numbers of students supported by RAs and increase the need for fellowships and other sources of funding.

• Priorities for improvement
  ▪ We currently do not track progress of graduate students and no annual reports are required. The graduate student’s committee meets annually and has the responsibility to assess progress towards degree.
  ▪ We are working to build an endowment at UW Foundation to support RAs in PBPG.
  ▪ We can increase numbers of minority students. Although we actively recruit minority students, undergraduates with good academic records in biology tend to pursue careers in the medical sciences.
  ▪ We may need to better communicate post-grad employment opportunities, so students have a better idea about future employment.

**Additional Considerations for Graduate Students**

J. Funding
• How is the program ensuring PhD students have adequate funding and taking steps to provide a multi-year funding guarantee upon admission? Are there opportunities for graduate students to secure individual extramural support? What efforts are made to ensure PhD students have funding?
  *Because essentially all PBPG students are supported by RAs, the major professor has the responsibility to ensure adequate funding to complete the MS or PhD degrees. For students entering with fellowships (such as SciMed/GRS), the program requires that the major professor demonstrate adequate funding when the student is not supported by the fellowship.*

• To what extent is the program making use of funding for diversity efforts?
  *The PBPG program uses funding from the Graduate School to support travel by faculty and students to meetings of groups such as SACNAS, where then interact with minority students and provide information about the program. After returning, the chair sends emails inviting applications from minority students with interests in the plant sciences. Graduate School funding is also used to bring in minority applicatns with interests consistent with faculty research, and we follow up with nominations for SciMed/GRS fellowships. Each year we support the BOPs program with donations of $1000.*

K. Professional Development and Breadth
*Discuss the professional development opportunities of graduates and consider the following:*
• How does the program encourage students to participate in professional development opportunities that will enhance their skills and support their career goals?

*In collaboration with the Plant Sciences Graduate Student Council (PSGSC), the program routinely supports career development seminars and workshops.* For example this semester PBPG with the Departments of Agronomy and Horticulture are supporting with PSGSC a “StrengthsFinder” Professional Development activity, in which students learn how to recognize their strengths and weaknesses to prepare them for job interviews.

• What resources and guidance are available for exploring academic and/or non-academic careers?

*Because PBPG faculty have extensive collaborations with public and private sector researchers, students are provided opportunities to interact with these individuals and learn about employment opportunities in both sectors.*

• How is the program using Individual Development Plans, which are recommended for all graduate students and required for those with NIH funding?

*Presently the PBPG program is developing IDPs.*

• What opportunities and funding are available to attend and present at professional meetings?

*The PBPG program receives some support from seed companies to provide partial funding for graduate students to attend professional meetings. The major professor also supports student travel to professional and stakeholder meetings. Students are forwarded emails from the program regarding opportunities to apply for the Graduate School Research and Travel Grants, CIAS Mini-Grants, Roger Blobaum Student Travel Fund, etc. PSGSC also sends out emails regarding plant breeding conferences with funding opportunities for students across the USA.*

• To what degree does the program offer teaching experience and teaching-related professional development to graduate students?

*No formal teaching experience is required; however students interested in working in the public sector are highly encouraged to complete TAs, generally in lab courses such as Biocore. Students are notified of TA opportunities via e-mail.*

• How does the typical graduate’s program ensure exposure to breadth training? Does the program require a doctoral minor for doctoral students or evaluate other breadth requirements?

*Because the PBPG requires coursework in more than one area (see curriculum in Appendix II or [http://plantbreeding.wisc.edu/current-students/program-requirements/](http://plantbreeding.wisc.edu/current-students/program-requirements/)), the students receive a broad exposure to the sciences of breeding (section A), genetics (section B) and statistics (section C).*
# Appendix I. PBPG faculty, home departments, and links to websites.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department</th>
<th>Lab Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amasino</td>
<td>Biochemistry</td>
<td><a href="https://biochem.wisc.edu/faculty/amasino">https://biochem.wisc.edu/faculty/amasino</a></td>
</tr>
<tr>
<td>Ane</td>
<td>Agronomy</td>
<td><a href="http://anelab.wisc.edu/">http://anelab.wisc.edu/</a></td>
</tr>
<tr>
<td>Bamberg</td>
<td>Horticulture</td>
<td><a href="https://horticulture.wisc.edu/faculty/john-bamberg/">https://horticulture.wisc.edu/faculty/john-bamberg/</a></td>
</tr>
<tr>
<td>Bednarek</td>
<td>Biochemistry</td>
<td><a href="https://biochem.wisc.edu/faculty/bednarek">https://biochem.wisc.edu/faculty/bednarek</a></td>
</tr>
<tr>
<td>Bent</td>
<td>Plant Pathology</td>
<td><a href="http://www.plantpath.wisc.edu/users/afbent">http://www.plantpath.wisc.edu/users/afbent</a></td>
</tr>
<tr>
<td>Bethke</td>
<td>Horticulture</td>
<td><a href="https://horticulture.wisc.edu/faculty/paul-bethke/">https://horticulture.wisc.edu/faculty/paul-bethke/</a></td>
</tr>
<tr>
<td>Broman</td>
<td>Biostatistics &amp; Medical Informatics</td>
<td><a href="http://kbroman.org/pages/about.html">http://kbroman.org/pages/about.html</a></td>
</tr>
<tr>
<td>Brunet</td>
<td>Entomology</td>
<td><a href="http://labs.russell.wisc.edu/ento/people/faculty/brunet/">http://labs.russell.wisc.edu/ento/people/faculty/brunet/</a></td>
</tr>
<tr>
<td>Casler</td>
<td>Agronomy</td>
<td><a href="https://agronomy.wisc.edu/michael-casler/">https://agronomy.wisc.edu/michael-casler/</a></td>
</tr>
<tr>
<td>Dawson</td>
<td>Horticulture</td>
<td><a href="https://dawson.horticulture.wisc.edu/">https://dawson.horticulture.wisc.edu/</a></td>
</tr>
<tr>
<td>De Leon</td>
<td>Agronomy</td>
<td><a href="https://agronomy.wisc.edu/natalia-de-leon/">https://agronomy.wisc.edu/natalia-de-leon/</a></td>
</tr>
<tr>
<td>Endelman</td>
<td>Horticulture</td>
<td><a href="https://potatobreeding.cals.wisc.edu/">https://potatobreeding.cals.wisc.edu/</a></td>
</tr>
<tr>
<td>Goldman</td>
<td>Horticulture</td>
<td><a href="https://goldman.horticulture.wisc.edu/">https://goldman.horticulture.wisc.edu/</a></td>
</tr>
<tr>
<td>Gutierrez</td>
<td>Agronomy</td>
<td><a href="https://agronomy.wisc.edu/lucia-gutierrez/">https://agronomy.wisc.edu/lucia-gutierrez/</a></td>
</tr>
<tr>
<td>Havey</td>
<td>Horticulture</td>
<td><a href="https://haveyLab.horticulture.wisc.edu/">https://haveyLab.horticulture.wisc.edu/</a></td>
</tr>
<tr>
<td>Jansky</td>
<td>Horticulture</td>
<td><a href="https://horticulture.wisc.edu/faculty/shelley-jansky/">https://horticulture.wisc.edu/faculty/shelley-jansky/</a></td>
</tr>
<tr>
<td>Jiang</td>
<td>Horticulture</td>
<td><a href="https://horticulture.wisc.edu/faculty/jiming-jiang/">https://horticulture.wisc.edu/faculty/jiming-jiang/</a></td>
</tr>
<tr>
<td>Kaeppler, H.</td>
<td>Agronomy</td>
<td><a href="https://agronomy.wisc.edu/heidi-kaeppler/">https://agronomy.wisc.edu/heidi-kaeppler/</a></td>
</tr>
<tr>
<td>Kaeppler, S.</td>
<td>Agronomy</td>
<td><a href="https://agronomy.wisc.edu/shawn-kaeppler/">https://agronomy.wisc.edu/shawn-kaeppler/</a></td>
</tr>
<tr>
<td>Krysan</td>
<td>Horticulture</td>
<td><a href="https://host.cals.wisc.edu/krysan/Krysan_Lab/Home.html">https://host.cals.wisc.edu/krysan/Krysan_Lab/Home.html</a></td>
</tr>
<tr>
<td>Maeda</td>
<td>Botany</td>
<td><a href="https://botany.wisc.edu/staff/maeda-hiroshi-a/">https://botany.wisc.edu/staff/maeda-hiroshi-a/</a></td>
</tr>
<tr>
<td>Mahalingam</td>
<td>Agronomy</td>
<td><a href="https://agronomy.wisc.edu/mali-mahalingam/">https://agronomy.wisc.edu/mali-mahalingam/</a></td>
</tr>
<tr>
<td>Masson</td>
<td>Genetics</td>
<td><a href="https://genetics.wisc.edu/staff/masson-patrick/">https://genetics.wisc.edu/staff/masson-patrick/</a></td>
</tr>
<tr>
<td>Nienhuis</td>
<td>Horticulture</td>
<td><a href="https://horticulture.wisc.edu/faculty/james-jim-nienhuis/">https://horticulture.wisc.edu/faculty/james-jim-nienhuis/</a></td>
</tr>
<tr>
<td>Palta</td>
<td>Horticulture</td>
<td><a href="https://horticulture.wisc.edu/faculty/jiwan-palta/">https://horticulture.wisc.edu/faculty/jiwan-palta/</a></td>
</tr>
<tr>
<td>Patterson</td>
<td>Horticulture</td>
<td><a href="https://patterson.horticulture.wisc.edu/">https://patterson.horticulture.wisc.edu/</a></td>
</tr>
<tr>
<td>Rouse</td>
<td>Plant Pathology</td>
<td><a href="http://www.plantpath.wisc.edu/users/dir">http://www.plantpath.wisc.edu/users/dir</a></td>
</tr>
<tr>
<td>Simon</td>
<td>Horticulture</td>
<td><a href="https://horticulture.wisc.edu/faculty/phillip-simon/">https://horticulture.wisc.edu/faculty/phillip-simon/</a></td>
</tr>
<tr>
<td>Spalding</td>
<td>Botany</td>
<td><a href="https://botany.wisc.edu/staff/spalding-edgar-p/">https://botany.wisc.edu/staff/spalding-edgar-p/</a></td>
</tr>
<tr>
<td>Spooner</td>
<td>Horticulture</td>
<td><a href="https://horticulture.wisc.edu/faculty/david-spooner/">https://horticulture.wisc.edu/faculty/david-spooner/</a></td>
</tr>
<tr>
<td>Tracy</td>
<td>Agronomy</td>
<td><a href="https://agronomy.wisc.edu/bill-tracy/">https://agronomy.wisc.edu/bill-tracy/</a></td>
</tr>
<tr>
<td>Waller</td>
<td>Botany</td>
<td><a href="https://botany.wisc.edu/staff/waller-donald-m/">https://botany.wisc.edu/staff/waller-donald-m/</a></td>
</tr>
<tr>
<td>Weng</td>
<td>Horticulture</td>
<td><a href="https://cucumber.vcru.wisc.edu/wenglab/home/index.html">https://cucumber.vcru.wisc.edu/wenglab/home/index.html</a></td>
</tr>
<tr>
<td>Zalapa</td>
<td>Horticulture</td>
<td><a href="https://cggl.horticulture.wisc.edu/">https://cggl.horticulture.wisc.edu/</a></td>
</tr>
<tr>
<td>Zhong</td>
<td>Genetics</td>
<td><a href="https://genetics.wisc.edu/staff/zhong-xuehua/">https://genetics.wisc.edu/staff/zhong-xuehua/</a></td>
</tr>
</tbody>
</table>
Appendix II. Core curriculum for Plant Breeding and Plant Genetics

PBPG Curriculum Requirements

M.S. – Nine credits from core curriculum including at least two in section A and two in section B or C. In addition two credits of Plant Breeding Seminar are required.

Ph.D. – Eleven credits from core curriculum including at least two each in sections A, B, and C. Three credits of Plant Breeding Seminar and an exit seminar are required.

**Core Curriculum**

A. **Plant Breeding**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hort/Agron 501</td>
<td>Principles of Plant Breeding</td>
<td>3</td>
<td>every spring</td>
</tr>
<tr>
<td>Hort/Agron 502</td>
<td>Techniques of Plant Breeding</td>
<td>1</td>
<td>spring odd years</td>
</tr>
<tr>
<td>Agron/Hort 812</td>
<td>Selection Theory</td>
<td>2</td>
<td>spring even years</td>
</tr>
</tbody>
</table>

B. **Genetics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hort/Genetics 550</td>
<td>Molecular Approaches for Potential Crop Improvement</td>
<td>3</td>
<td>every spring</td>
</tr>
<tr>
<td>Hort/Agron 506</td>
<td>Introductory Cytogenetics (Discontinued)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genetics 631</td>
<td>Plant Genetics</td>
<td>2</td>
<td>fall odd years</td>
</tr>
<tr>
<td>Genetics 701</td>
<td>Advanced Genetics</td>
<td>3</td>
<td>every fall</td>
</tr>
<tr>
<td>Botany 840</td>
<td>Regulatory Mechanisms in Plant Development</td>
<td>3</td>
<td>fall even years</td>
</tr>
<tr>
<td>Hort/Agron 875</td>
<td>Polyploid Genetics</td>
<td>1</td>
<td>spring even years</td>
</tr>
<tr>
<td>Hort/Agron 875</td>
<td>Genetic Analysis with R</td>
<td>2</td>
<td>spring odd years</td>
</tr>
</tbody>
</table>

C. **Quantitative Genetics and Biometry**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hort/ Stat 572</td>
<td>Statistical Methods for Bioscience II</td>
<td>4</td>
<td>every spring</td>
</tr>
<tr>
<td>Agron/Hort 811</td>
<td>Biometrical Procedures in Plant Improvement</td>
<td>3</td>
<td>fall odd years</td>
</tr>
<tr>
<td>Genetics 629</td>
<td>Evolutionary Genetics</td>
<td>3</td>
<td>fall odd years</td>
</tr>
<tr>
<td>Agron 771 &amp; 772</td>
<td>Applications in ANOVA and Experimental Design</td>
<td>1 each</td>
<td>spring odd years</td>
</tr>
</tbody>
</table>

D. **Additional Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochem 621</td>
<td>Plant Biochemistry</td>
<td>3</td>
<td>spring odd years</td>
</tr>
<tr>
<td>Plant Path 505</td>
<td>Molecular Plant-Microbe Interactions</td>
<td>3</td>
<td>every spring</td>
</tr>
<tr>
<td>Plant Path 517</td>
<td>Plant Disease Resistance</td>
<td>3</td>
<td>fall even years</td>
</tr>
<tr>
<td>Genetics 633</td>
<td>Population Genetics</td>
<td>3</td>
<td>every fall</td>
</tr>
<tr>
<td>Botany 500</td>
<td>Plant Physiology</td>
<td>3-4</td>
<td>every spring</td>
</tr>
</tbody>
</table>

*Additional Courses not in Core Curriculum and do not count towards the required 11 credits for MS or 17 credits for Ph.D.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business 311</td>
<td>Business Fundamentals</td>
<td>3</td>
<td>spring</td>
</tr>
<tr>
<td>Botany 575</td>
<td>Scientific Writing</td>
<td>2</td>
<td>spring</td>
</tr>
</tbody>
</table>
September 27, 2017

TO: Michael Havey  
    Program Chair, Plant Breeding and Plant Genetics

FROM: Sarah Pfatteicher  
       Associate Dean of Academic Affairs

RE: Plant Breeding and Plant Genetics 10-Year Review

CC: Nikki Bollig, Sarah Kuba, Irwin Goldman, Kathryn Jones, Jocelyn Milner, Marty Gustafson, Dick Straub, Kathryn VandenBosch

As you know, the Board of Regents requires that all academic programs be reviewed every ten years. We would therefore like to initiate a comprehensive review of the following programs to be completed in the next two academic years:

- Plant Breeding and Plant Genetics, MS
- Plant Breeding and Plant Genetics, PhD
- Plant Breeding and Plant Genetics, Doctoral Minor

We are requesting the program conduct a self-study in preparation for the comprehensive review and prepare a single self-study document for the programs listed above. Once the self-study is completed, we will convene a cross-college review committee to review these materials, talk with you, your colleagues and students, and prepare a report to the CALS and University Academic Planning Councils and the Graduate Faculty Executive Committee. These governance bodies will discuss all of the documents and make recommendations about the program. Completion of the full review process is due to the Board of Regents by Spring of 2019. In order to meet this deadline, we ask that you please submit your self-study to academicaffairs@cals.wisc.edu by March 1, 2018.

Purpose of the Review

As you prepare for the review, please consult the UW-Madison Program Review Guidelines and Resources, posted at http://apir.wisc.edu/programreview.htm, and excerpted here:

Purposes of Ten-Year Reviews:

a. Focus on the recent past and key points over the past decade as context for present and future improvements.

b. Concentrate on the academic program and student experience.
c. Review program learning goals and assessment of learning.
d. Understand the current student experience with regard to academics, advising, climate, and career development.
e. Identify program strengths and recommendations for improvements.

The overall well-being of the administrative home is also important for the success of academic programs, particularly how the functioning of the administrative home relates to educational programs and student outcomes. As such, CALS practice has been to use the program reviews as an opportunity to summarize the departmental/programmatic trajectory and priorities. This approach provides a context to align program planning with that of the department/program overall. We encourage you to use the consultative nature of the review process to identify and resolve administrative or structural matters that affect your programs. Your self-study will draw upon all of this information to reflect more generally on the quality and future of the programs.

Content of the Self-Study

In preparing your self-study, please refer to the following resources:

- Self-Study Guidelines: https://kb.wisc.edu/vesta/page.php?id=63649
- Self-Study Template: https://kb.wisc.edu/vesta/page.php?id=63649

The CALS Dean’s Office also requests a concise overview of other aspects of the department/program, including faculty engagement, facilities, and research and Extension/outreach missions. Please include a brief discussion and assessment of these aspects in a separate section of the self-study, emphasizing not only how they affect and intersect with the academic programs under consideration, but also how they impact the overall strength of the department/program. Of particular interest in this section are how the department/program’s overall strengths and priorities align with the academic programs under review, and how any long-term trends affecting the department/program or the discipline impact the academic programs.

In addition, the Dean’s office asks that you please address the following topics in your self-study:

- We have intentionally structured the program review process to cluster reviews of similar programs at the same time in order to evaluate the relationship between like subjects. The following programs are also undergoing review:
  - Agroecology, MS
  - Horticulture, MS, PhD, Doctoral Minor
  - Plant Pathology, MS, PhD, Doctoral Minor

  Please comment on the relationship of your academic programs to the other programs under review, including any useful synergies that may exist.

- Given that the program is not housed exclusively in one department, due to its interdisciplinary nature, how do students in the program develop community? What is the sense of cohesion between students, faculty, and instructional staff?
Resources for Program Review

It may be helpful to include in the self-study data relevant to the program, such as program requirements, number of students declared, number of students completing the program, etc. The UW-Madison Office of Academic Planning and Institutional Research offers a wealth of data and metrics that can help with program evaluation. We strongly encourage you to consult these resources, consider them in light of similar programs, and reflect on whether or not the data reveal any issues that require attention. (For example, see http://apir.wisc.edu/students-degrees.htm; and Resources that Support Program Review: https://kb.wisc.edu/vesta/page.php?id=56637.)

Thank you for your prompt attention to this important activity. We look forward to working with you in this process. If you have questions, please contact Nikki Bollig or myself.