Graduate Program Review – Response Form
Texas Tech University

Program Reviewed: Spring Semester, 2016

Onsite Review Dates: April 25th and 26th, 2016

Name of Reviewers:

Internal: (Please include Name, Title and Department)

Michael Ballou, Associate Dean for Research and Associate Professor, Department of Animal and Food Sciences and College of Agricultural Sciences and Natural Resources

Mellinee Lesley, Associate Dean of Graduate Education and Research and Professor, Language, Diversity, and Literacy Studies

Sheila Scott, Professor and Associate Department Chair, Department of Hospitality and Retail Management

External: (Please include Name, Title, Department, and Institution)

Lawrence Datnoff, Department Head and Professor, Department of Plant Pathology and Crop Physiology Louisiana State University

Manoj Shukla, Professor, Department of Plant and Environmental Sciences, New Mexico State University

I. Academic Unit Description and Strategic Plan

Please evaluate the following departmental factors by clicking and selecting the appropriate rating descriptor:

Vision, Mission and Goals: Good

Strategic Plan: Needs Improvement

Please comment on the positive components and suggested areas of improvement.

The Vision and Mission were clearly articulated for PSS although after discussions with faculty and administrators, it appears that an inclusion of the expansive areas of emphasis might be beneficial to include. Specific goals of the department are largely not measurable and do not match the outcomes listed in the Strategic Plan. Most of the listed goals are singular in focus except the fourth. Economic growth seems to be added as an afterthought and does not appear to apply to the goal.
It is unclear when the Strategic Plan was created. Outcomes for Assessment Methods are listed for 2005 and 2015. It is also unclear if the Assessment Methods were included in the original plan. If so, the specific assessment methods should be listed with the Strategies being measured. Not all assessment methods include outcomes, therefore it is difficult to ascertain the achievement of the outcome. The strategies should be mirrored in the assessment methods, there seems to be only partial connection in Outcome I.

II. Program Curriculum

Please evaluate the following program curriculum factors for the masters and doctoral programs by clicking and selecting the appropriate rating descriptor:

- **Alignment of the program with stated program and institutional goals and purposes:**
  - Masters degree: Very Good
  - Doctoral degree: Very Good

- **Curriculum development coordination and delivery:**
  - Masters degree: Very Good
  - Doctoral degree: Very Good

- **Program learning outcomes assessment:**
  - Masters degree: Good
  - Doctoral degree: Good

- **Program curriculum compared to peer programs:**
  - Masters degree: Very Good
  - Doctoral degree: Very Good

Please comment on the positive components and suggested areas of improvement.

Courses in the Plant and Soil Sciences program reflect an innovative, industry-driven, and regionally minded curriculum. One example of this is the enology program. This is a growing program in Plant and Soil Sciences. Similarly, Plant and Soil Sciences has seen a great deal of growth in student enrollment in their undergraduate horticulture courses. At the graduate level, students are exposed to real-world problems and partnerships with industry partners.

Both students and faculty stated they felt as though graduate students received a “well rounded” education because of the disciplinary diversity in the program and noted the advantages and disadvantages to this. On one hand, students receive a breadth of knowledge. On the other hand, they tend to not develop a deep level of expertise, in the classroom, in any one area. One student stated that the coursework “trains you to be a very good generalist.” Faculty also felt that there was a need for new faculty hires to bring in new courses.
One area of coursework students stated needed greater attention was distance education. Quality online coursework and labs is an ongoing area of concern for the program. Students complained that most online courses were taught like face-to-face courses in that they were typically a recording of the professor lecturing. Synchronous instruction could be increased and students could work at a distance on lab projects by having a “lab box” for students to complete to overcome this trend.

Combined undergraduate and graduate courses are problematic. Students and faculty noted the content in these classes tends to focus at the master’s level.

Students and faculty noted students need greater support for developing scientific writing skills. Students felt writing instruction was very “advisor-specific.” Faculty members agreed with the need for writing support. Members of the advisory board stated the Plant and Soil Sciences program needed to cultivate students who have production agriculture knowledge and can blog to individuals who buy groceries. This comment highlights the broad range of writing and communication skills graduate students need to possess. We recommend a series of workshops or a one hour lab on technical writing as well as embedded writing assignments in existing courses that build in models of good writing and have students sharing rough drafts of their writing before submitting it for evaluation.

Faculty and students felt that the number of in-class hours required for the Ph.D. were too many. They specifically noted that there were only allowed to apply 6 hours of research credit to their degree plan. They would like to restructure the doctoral program and reduce the number of required hours. Curriculum reform is planned to begin in the fall of 2015. Each discipline will have a subcommittee examine needed skills and subskills in coursework and create a plan to present to the faculty.

### III. Faculty Productivity

Please evaluate the following faculty productivity factors by clicking and selecting the appropriate rating descriptor:

- **Qualifications:** Excellent
- **Publications/Creative Works:** Excellent
- **Teaching Load:** Good
- **External Grants:** Very Good
- **Teaching Evaluations:** Very Good
- **Professional Service:** Excellent
- **Community Service:** Excellent

Please comment on the positive components and suggested areas of improvement.

The department had approximately 18 faculty FTE in 2014, but those FTE employ about 30 individual faculty who have graduate faculty status. This is accomplished because of a
significant amount of faculty that are jointly appointed between Texas Tech University and Texas A&M AgriLife Research and Texas A&M AgriLife Extension. The faculty are supportive of continuing to foster the joint appointments. In addition, the USDA-ARS Cropping Systems Research Laboratory is located in Lubbock, TX and many of the research scientist have adjunct faculty status. There are strong industry and federal agency relationships in the department and many research scientists at these institutions also have adjunct faculty status and serve on graduate student committees.

Faculty are highly productive refereed articles/abstracts ranging from 139 to 274 per year and book/book chapters ranging from 5 to 14 per year. In addition faculty are engaged in professional organizations and industry and the number of presentations/posters per year ranged from 122 to 288 and technical/popular press articles ranged from 18 to 48 per year.

The faculty intentionally engage graduate students in the publication process, which is reflected by the number of publications and presentations that involve at least 1 graduate student. Graduate student assistantship support is strong, and most graduate students are on an assistantship.

Many of the faculty also serve at some capacity in at least one professional society. Faculty workloads are consistently above the university and college averages. Faculty loads of teaching 2 classes a semester is not uncommon at Texas Tech University; however, this load does not resemble the expectations for a Tier 1 research institution. Faculty noted they needed more Teaching Assistants especially to help teach undergraduate labs.

Many of the faculty are involved in teaching a graduate level course, and teaching evaluations are generally very good.

IV. Students and Graduates

Please evaluate the following student- and graduate-related factors by clicking and selecting the appropriate rating descriptor:

*Time to degree:*
  - Masters degree: Good
  - Doctoral degree: Very Good

*Retention:*
  - Masters degree: Good
  - Doctoral degree: Good

*Graduate Rates:*
  - Masters degree: Good
  - Doctoral degree: Very Good

*Enrollment:*
  - Masters degree: Good
  - Doctoral degree: Very Good
**Demographics:**

Masters degree: Good  
Doctoral degree: Good

**Number of Degrees Conferred Annually:**

Masters degree: Very Good  
Doctoral degree: Excellent

**Support Services:**

Masters degree: Very Good  
Doctoral degree: Very Good

**Job Placement:**

Masters degree: Excellent  
Doctoral degree: Very Good

**Student/Faculty Ratio:**

Masters degree: Very Good  
Doctoral degree: Very Good

Please comment on the positive components and suggested areas of improvement.

The time to degree for a M.S. degree is 2-4 years, with a Ph.D. typically 3.5 – 5 years depending on the research. This is an acceptable timeframe based on the research data collection. However, students indicated that graduation delays occur because of vacant faculty lines causing an inability to offer needed courses. Other delays may occur because of uncontrollable factors such as weather and climate.

The retention of students was difficult to ascertain. There was dialog discussing retention efforts, however the retention percentages were not provided. Graduation rates were also difficult to determine. The Strategic Plan indicates an Assessment Method but does not indicate if the methods were met or if the listed 67% for MS and 85% for PhD are actual results. If they are actual rates, the M.S. program needs additional attention.

Enrollment is down for the M.S. program, while the Ph.D. has grown over the past few years. The overall number of graduate students remains relatively stable. Since the vast majority of graduate students have full funding, without additional faculty lines to seek external funding opportunities, the number is unlikely to change. While it is good that a recruitment plan is in place, the lack of measurability makes the functionality a problem.

Demographic information provided was incomplete, making assessment difficult. It appears that the student body is approximately half domestic and half international. It appears that there is little domestic ethnic diversity.

Number of degrees conferred annually for each degree is currently above the minimum requirements. As the PhD continues to grow, seemingly at the expense of the MS, the graduation rate for the MS may become a problem.
The mentoring programs for graduate students is strong and provides good support. Many students indicated a good relationship with their faculty mentors or advisors with adequate interactions. Students mentioned that some faculty are supportive, while others are not. Substantial financial support is provided to students through scholarships, fellowships and tuition/fee waivers.

Placement for both M.S. and Ph.D. students is strong. Unlike many programs, often Ph.D. graduated enter industry rather than academia. Academia placement may be an issue for students due to the lack of coursework that builds to provide students with an area of expertise. Both faculty and students indicated that other programs in the U.S. would better provide opportunities to develop a level of expertise.

Depending on area of emphasis, the student to faculty ratio differs. Some faculty and students indicated that this is a potential problem. Some students find it difficult to get quality time with their advisors because of the faculty work load and number of students advised.

V. Facilities and Resources
Please evaluate the following facilities and resources factors by clicking and selecting the appropriate rating descriptor:

- **Facilities:** Very Good
- **Facility Support Resources:** Very Good
- **Financial Resources:** Very Good
- **Staff Resources:** Very Good

Please comment on the positive components and suggested areas of improvement.

The Plant and Soil Sciences Graduate Program has recently renovated part of their building to include several technological improvements. Prior to these renovations, the entire building was in need of being updated to meet current research and market expectations. These improvements include a new wing that has shared and updated lab space, classrooms with updated equipment, and several areas for students to study that support technology and collaboration on projects. In addition to the main building, Plant and Soil Sciences also has a horticultural center with greenhouses and a public garden, and two research farms—one located in New Deal, TX, and one located off Quaker Avenue in Lubbock, TX. From commentary gathered from faculty and students, these facilities appear to be appropriate to support the coursework and research needs of both students and faculty.

In a survey recently administered to graduate students in the program, students were asked whether the facilities and equipment available were adequate. The average response for this item on a five point scale was 4.09. In fact, 11 of the 23 students responded with “strongly agree” on this item. Responses pertaining to the availability of office space for graduate students were more favorable with an average score of 4.41 on a five point scale. Student views about their access to the facilities and equipment was a little less enthusiastic with an
average score of 3.62. Although much of the laboratory space is a “shared” space, we recommend faculty in the Plant and Soil Sciences program think about ways to instill a lab rotation system to ensure all students feel they have equal access to the facilities and equipment.

Students also commented on the hardships of traveling to campus with research materials from the research farms (e.g., soil samples) and not being able to park on campus. Consequently, we recommend the Plant and Soil Sciences program seek arrangements with Campus Parking to permit temporary parking privileges adjacent to the building.

VI. Overall Ranking
Please provide an overall rating of the masters and doctoral degree programs by clicking and selecting the appropriate rating descriptor:

*Overall Rating:*

- Masters degree: Very Good
- Doctoral degree: Very Good

Please provide summative conclusions based on the overall review.

The faculty, staff, and administration of Plant and Soil Sciences are doing an excellent job creating an academic environment that is conducive to the education of graduate students. Faculty enjoy working in the department and students believe they are receiving a good education and foundation for their future.

Please provided summative recommendations based on the overall review.

Revision of the strategic plan that includes appropriate assessment and measurable outcomes for each goal.

A series of workshops or a one hour lab on technical writing as well as embedded writing assignments in existing graduate courses that build in models of good writing and have students sharing rough drafts of their writing before submitting it for evaluation.

Address the combined undergraduate / graduate courses during the curriculum review.

Ensure all core curriculum courses are taught on a consistent basis and address depth of curriculum in major areas of emphasis in the department during the curriculum review.