

## DEPARTMENT OF PLANT AND SOIL SCIENCE

# Strategic Plan (2021-2025)

### MISSION STATEMENT

The Department of Plant and Soil Science conducts fundamental and applied plant and soil research, offers competitive and inclusive undergraduate and graduate education and training, and engages with current and emerging plant and soil sciences issues to address environmental challenges.

### VISION STATEMENT

Our Vision is to lead in teaching, research, and engagement in plant and soil sciences, and to train future leaders and scientists who will improve the quality of life and ensure sustainability of agricultural and natural systems in a changing environment.

#### **The Department of Plant and Soil Science is committed to:**

- conducting high quality basic, applied and translational research;
- teaching and training students to be a top department in the area of plant and soil sciences in the nation;
- preparing students to become scientists and leaders in plant and soil sciences with a global impact;
- discovering and applying knowledge through research, creative activity, and outreach;
- fostering socially and environmentally responsible economic growth.

#### **The Department of Plant and Soil Science is committed to an academic culture that values:**

- mutual respect, trust, integrity and a supportive environment;
- open communication, teamwork, and partnership;
- creativity, innovation, and pursuit of excellence;
- community service, leadership, and public accountability;
- diversity, equity and inclusion;
- academic and intellectual freedom.

## **EXPECTED OUTCOMES, ASSESSMENT METHODS, OBJECTIVES, AND STRATEGIES**

**Expected Outcome 1:** Increase Student Enrollment, Access to Higher Education, and Preparedness

**Expected Outcome 2:** Enhance Academic Quality and Reputation

**Expected Outcome 3:** Expand and Enhance Research and Creative Scholarship

**Expected Outcome 4:** Strengthen Outreach, Engagement, and Pride in PSS

## **Expected Outcome 1: Increase Student Enrollment, Access to Higher Education, and Preparedness**

*KEY OUTCOME: We will grow and diversify PSS's student population to increase participation in higher education and to prepare a qualified workforce (relates to Texas Higher Education Board's "Closing the Gaps in Participation" and "Closing the Gaps in Success").*

### Assessment Benchmarks:

- Increase enrollment of undergraduates and graduates by at least 20%. (Undergraduate - 2015: 131; 2020: 197)\* (Graduate - 2015:87; 2020: 112)\*
- Achieve high ethnic diversity, including at least 25% Hispanic students. (25% is university benchmark for qualifying as a Hispanic-Serving Institution) (2019 PSS: 23.5%, 2021 PSS: 24.9%)
- Maintain at least 90% first year undergraduate retention rate. (PSS: 94% in 2019)
- Achieve at least 65% 4-year undergraduate graduation rate. (PSS 60% in 2020)
- Increase distance student enrollment by at least 15%. (UG/G Fall 2020: 79/25; Spring 2021:71/32)
- Offer at least 75% of undergraduate and graduate courses at a distance. (2021: undergraduate courses 34/46 (74%); graduate 26/40 (65%))
- Offer at least 3 continuing education certificate programs for professional development of horticulture and wine industry personnel.
- Ensure that at least 20% of undergraduates participate in high impact experiences, including research, internships, study abroad, and international experiences each year. (In 2021, 15% of undergraduate students participated in internships; no international trips were planned due to the COVID-19 pandemic.)
- Achieve at least 85% M.S. 5-year average graduation rate combined among on-campus and online programs. (TTU 5-year average: 79%; PSS 5-yr average: 60%)
- Achieve at least 75% Doctoral 10-year average graduation rate. (TTU 10 yr ave: 67%; PSS 10 yr ave: 66.67%)
- Achieve Mean time to Doctoral degree completion of less than 4.3 years. (2020: 4.49; 2021: 4.14 years)
- Award at least 38 undergraduate diplomas per year. (2019-20: 35)
- Confer at least 20 M.S. diplomas awarded per year. (2019-20: 17)
- Confer at least 10 Ph. D. diplomas awarded per year. (2019-20: 8)

\*Fall semester

## Objectives

**Objective 1.1:** Increase student numbers and encourage diversity

**Strategies:**

- High Schools – Offer at least 2 dual credit courses through onramps program.
- Attract students to gateway classes like PSS 1411 to increase transfer/internal students.
- Use available tools to increase visibility on social media.
- Work with diversity centers within TTU.
- Promote undergrad research experiences.
- Offer competitive graduate student funding for high quality graduate students.
- Increase recruiting efforts towards regional minority students.
- Increase overall scholarship funds, including scholarships for minority and international students.
- Balance scholarship expenditures to yearly scholarship revenues.
- Support all qualified scholarship applicants.

**Objective 1.2:** Lead the university in distance learning

**Strategies:**

- Increase accessibility for distance education students (ex. Using digital tools, eLearning, and financial assistance).
- Continue to increase number of distance education courses/sections offered.
- Continue partnerships with other universities (e.g., AG\*IDEA) in providing distance-based courses and degrees.
- Increase PSS course offerings taught at the TTU Regional Teaching Site in Fredericksburg.

**Objective 1.3:** Provide undergraduate, graduate, and professional curricula/programs that enhance disciplinary knowledge, analytical, creative thinking, and leadership skills

**Strategies:**

- Conduct comprehensive curriculum reviews to assess the capacity of current programs and needs for change.
- Incorporate input from the PSS Advisory Committee in evaluation of curricula and programs.

**Objective 1.4:** Increase the number of high-quality graduate students and student participation in high impact opportunities

**Strategies:**

- Increase research, internship, study abroad opportunities for students.

- Provide special problem courses and/or internship opportunities for undergraduate students involved in research.
- Provide competitive externally funded assistantships, scholarships, and fellowships for all qualified graduate students.

## **Expected Outcome 2: Enhance Academic Quality and Reputation**

*KEY OUTCOME: Attain national and international recognition of students, faculty, and staff.*

### **Assessment Benchmarks:**

- Maintain full complement of faculty through traditional and targeted faculty (replacement) hires.
- Involve at least 2 staff in professional development activities per year.
- Nominate at least 1 staff for an award per year at the college or university level.
- Increase number of tenured/tenure-track faculty achieving professional and national recognition.
- Increase the number of tenured/tenure-track faculty holding officer, board, and/or editor positions in professional societies (10 by 2025).
- Increase the number of tenured/tenure-track faculty serving on special Federal/State/Regional committees/boards/review panels (at least 5 by 2025).
- Provide endowed chairs and professorships to senior faculty.

### **Objectives**

**Objective 2.1:** Recruit, mentor, retain, recognize, and reward outstanding, diverse faculty and staff

#### **Strategies:**

- Leverage strategic/targeted hiring opportunities provided by the Office of the Vice President for Research when available.
- Hire new faculty in areas that will be identified as strategic opportunities in research and teaching.
- Ensure appropriate mentoring and support for young faculty at the department and college level.
- Commit a minimum of \$5000 of departmental funds for early career faculty development activities and \$2500 for staff development every year.

**Objective 2.2:** Increase national recognition of students and faculty

#### **Strategies:**

- Charge the PSS Scholarship Committee with annually evaluating students for nomination to university, regional, and national awards.
- Ensure PSS has a mechanism to consistently evaluate and nominate faculty for university and professional society awards and honors.

**Objectives 2.3:** Work with the international office to initiate formal exchange programs with international institutions

**Strategies:**

- Examine opportunities for new exchange programs in the context of how they will complement PSS teaching and strategic research efforts.
- Encourage students to take advantage of existing international education programs.
- Provide term salary and other financial support to faculty that participate in study abroad and other international student activities.

## **Expected Outcome 3: Expand and Enhance Research and Creative Scholarship**

*KEY OUTCOME: Increase national recognition in research and creative scholarship.*

### **Assessment Benchmarks:**

- Maintain at least 12 Postdoctoral appointments per year.
- Maintain at least 75 undergraduates involved in research per year. (2005: 61; 2010 Outcome: 60) (50:2020)
- Submit at least 120 research proposals and \$25 million worth of research proposals per year. (2020 Outcome: 98; \$20.9 million)
- Obtain at least \$5 million total research and contract funding per year. (2020 outcome: \$4.39 million)
- Reach total research expenditures of at least \$8 million per year.
- Expect 100% of tenure-track faculty to generate sponsored research funding each year.
- Maintain at least \$200,000 annual institutional dollars on research equipment and facilities.
- Publish and/or submit at least 60 refereed journal publications per year.
- Achieve at least 1:4 leveraging of state funds. (2005: 1:4.33; 2010 Outcome: 5.94)
- Obtain at least 3 IP disclosures per year and significant sponsored research agreements, new patents, license agreements, or commercial entities per year.

### **Objectives**

**Objective 3.1:** Enhance existing research programs, improve research facilities, and develop new research initiatives

#### **Strategies:**

- Identify a prioritized list of areas of research excellence in PSS.
- Provide seed funding to promote collaborative research in the identified areas of excellence.
- Develop a coordinated plan and priority list (i.e. Core or shared use facilities) or update existing infrastructure.
- Support the acquisition of state-of-the-art technology and/or equipment for research.

**Objective 3.2:** Promote and support multidisciplinary research

#### **Strategies:**

- Promote and support multidisciplinary research beyond the PSS department.



- Provide incentives in the form of partial graduate student salaries and other financial support to faculty who participate in large multidisciplinary research projects and competitive grant funding.
- Facilitate efforts to secure more research funding from international funding agencies, corporations, and foundations.
- Facilitate opportunities for faculty to meet and interact with each other, prospective collaborators within Texas Tech, and potential collaborators outside Texas Tech.

**Objective 3.3:** Foster research programs that contribute to local and regional economic development and entrepreneurship

**Strategies:**

- Identify priorities for economic development and entrepreneurial opportunities with input from the PSS advisory committee and industry groups.
- Facilitate participation in workshops such as NSF I-Corps, iHub, etc.

## **Expected Outcome 4: Strengthen Outreach, Engagement, and Pride in PSS**

*KEY OUTCOME: Increase outreach, engagement activities, public knowledge and support of the Department of Plant and Soil Science.*

### **Assessment Benchmarks:**

- Host 21 workshops, symposia, and other events per year. (2009: 21; 2010 Outcome: 21)
- Maintain and protect joint appointments between PSS and Texas AgriLife Research and Extension. (2005: 11; 2010 Outcome: 12)
- Continue the PSS Quarterly Newsletters to highlight faculty, staff, and student achievement on multiple platforms.

### **Objectives**

**Objective 4.1:** Strengthen partnerships and collaborations involved in education and research in agriculture and natural resources

#### **Strategies:**

- Work closely with TAMU AgriLife Research and Extension, USDA- ARS, USDA-AMS, units of the Texas Tech University System, and other universities by developing proposals, manuscripts, research projects, and mentoring student research.
- Collaborate with educational and outreach programs at the Hill Country University Center in Fredericksburg.

**Objective 4.2:** Enhance public awareness and visibility of PSS

#### **Strategies:**

- Publish articles in local and regional media about PSS research, teaching, faculty and student achievements.
- Improve faculty visibility through social media, faculty websites, and the departmental website.

**Objective 4.3:** Inform alumni of PSS accomplishments and encourage them to be ambassadors for PSS

**Strategies:**

- Maintain quarterly newsletters for alumni that will share PSS news and information.
- Maintain social media presence and outreach on sites such as Facebook, twitter, and the departmental website.

**Objective 4.4:** Enhance and expand continuing education certificate programs for professional development in horticulture and wine industry

**Strategies:**

- Continue the Texas Viticulture Certificate and Texas Wine Making Certificate programs, based at the Hill Country University Center in Fredericksburg.
- Work to develop a combination of viticulture, wine, and spirits research in West Texas.
- Develop a certificate program for sustainable small farm production, based at the Hill Country University Center in Fredericksburg.
- Develop field plots and teaching infrastructure for Small Farm certificate program.