

ENTOMOLOGY AND PLANT PATHOLOGY

MISSION

The Department of Entomology and Plant Pathology discovers, develops and disseminates scientific knowledge concerning arthropods and plant pathogens.

VISION

The Department of Entomology and Plant Pathology will have preeminent programs in research, teaching, and extension that will serve society's need for information related to arthropods and plant pathogens.

To accomplish this the Department of Entomology and Plant Pathology will:

- Attract, educate and retain top quality undergraduate and graduate students dedicated to their profession and provide an environment to stimulate intellectual curiosity, discernment, knowledge and skills;
- Attract and retain top quality faculty members dedicated to their professions to help fulfill the University's mission;
- Be nationally recognized in fundamental and mission-oriented research programs relative to its disciplines; and
- Provide excellent extension programs to better inform and educate our clientele regarding identification, diagnosis, and management of plant diseases and arthropod pests.

CORE VALUES

Excellence – We seek excellence in all our endeavors, and we are committed to continuous improvement.

Intellectual Freedom – We believe in ethical and scholarly questioning in an environment that respects the rights of all too freely pursue knowledge.

Integrity – We are committed to the principles of truth and honesty, and we will be equitable, ethical, and professional.

Service – We believe that serving others is a noble and worthy endeavor.

Diversity – We respect others and value diversity of opinion, freedom of expression, and other ethnic and cultural backgrounds.

Stewardship of Resources – We are dedicated to the efficient and effective use of resources. We accept the responsibility of the public's trust and are accountable for our actions.

Goals, Critical Success Factors, Objectives, and Strategies

Goal 1. Academic Excellence – Create and uphold high standards of excellence in instruction.

Critical Success Factors:

- Achieve an average of at least 2 refereed publications per faculty research Full Time Equivalent per year.
- Achieve and maintain research and outreach extramural funding of at least \$1.5 million per year, assuming current staffing levels.
- Achieve and maintain an average of at least 5 oral or poster research presentations per research Full Time Equivalent per year at regional, national or international professional meetings.
- Achieve an average of at least 5 extension publications per faculty extension Full Time Equivalent per year.
- Develop and present 10 educational programs per extension faculty per year.
- All undergraduate and graduate classes instructed by faculty with graduate degrees.
- Achieve and maintain an average of 50 undergraduate students enrolled in departmental courses per teaching Full Time Equivalent per year.
- Achieve and maintain an average of 20 teaching contact hours in graduate courses per teaching Full Time Equivalent per year.
- Achieve a very high or high satisfaction rating on the course and instructor evaluation form from at least 75% of the respondents.

Objectives:

Objective 1.1: Promote the discovery, understanding and application of fundamental mechanisms.

Strategies:

- Participate in the creation of a center for fundamental biology in agricultural sciences.
- Continue and enhance current research efforts concerning fundamental biology of plant pathogens and arthropods.
- Maintain faculty positions in key research areas.

Objective 1.2: Increase knowledge of the interaction of plant pathogens and arthropods with their host and their environments.

Strategies:

- Promote and enhance research on host arthropod interactions and host plant pathogen interactions.

- Establish priorities for key research positions that can be filled when funding is available.
- Participate in the initiatives program to enhance cooperative research throughout Division of Agricultural Sciences and Natural Resources.

Objective 1.3: Develop highly competent and productive Entomology and Plant Pathology research programs that address critical needs.

Strategies:

- Aggressively pursue extramural funding opportunities at the state, national & international level.
- Prepare multiple annual research proposals to external granting agencies for support of innovative research projects.
- Take advantage of the research expertise of faculty to prepare novel collaborative research proposals.
- Identify and prioritize research to focus on critical needs that can be addressed by our departmental expertise.

Objective 1.4: Develop strong multidisciplinary research programs in fundamental and applied sciences that are integrated with cooperative extension.

Strategies:

- Participate in the Oklahoma Agriculture Experiment Station and Oklahoma Cooperative Extension Service initiative programs to be sure basic and applied research projects and results are communicated to extension educators and the public.

Objective 1.5: Maintain and improve departmental infrastructure conducive to innovative, creative and relevant research programs.

Strategies:

- Work with Division of Agricultural Sciences and Natural Resources Administration to maintain and enhance key research facilities that serve faculty.
- Seek grants to purchase and maintain key research equipment that serves Division of Agricultural Sciences and Natural Resources faculty.

Objective 1.6: Develop outreach programs that are highly relevant to stakeholders.

Strategies:

- Participate in professional development programs designed for improving our outreach capabilities
- Participate in the e-Extension initiative, including the development of financial resources to help fund this effort and the contribution of pertinent educational materials.

Objective 1.7: Develop and retain highly competent and motivated instructors for all undergraduate and graduate classes.

Strategies:

- Prioritize and identify all instructional capability to efficiently offer relevant coursework.
- Prioritize and identify all instructional needs to fill gaps in needed curricula.
- Develop one-on-one mentoring of young faculty by experienced faculty members.
- Continue Departmental policy that all annual Department Head appraisals of non-tenured assistant professors and tenured associate professors are reviewed by the Reappointment, Promotion, and Tenure Review Committee
- Committee and that this committee responds in writing to the Department Head regarding their review.

Objective 1.8: Evaluate and maintain curricula that are academically challenging and highly relevant to needs of students and society.

Strategies:

- Review all courses that are pertinent to the undergraduate and graduate degree programs in the Department to meet the guidelines established by the Board of Regents for the Oklahoma Agricultural & Mechanical Colleges.
- Evaluate programs to meet standards established in the North Central Association Accreditation Program for Colleges and High Schools.
- Regularly review our courses to meet the professional needs of our undergraduate and graduate students.

Objective 1.9: Continue and expand the teaching and advising faculty development program.

Strategies:

- Participate in the faculty development program in teaching and advising at the College of Agricultural Sciences and Natural Resources level.
- Use limited teaching funds judiciously to support faculty and staff development in teaching and advising.

Objective 1.10: Continue to improve the departmental outcomes assessment program.

Strategies:

- Support the programs of the OSU Office of University Assessment.
- Incorporate Division of Agricultural Sciences and Natural Resources - OSU outcomes assessment guidelines.
- Adjust teaching programs in response to outcomes assessment findings.

Objective 1.11: Identify and encourage qualified undergraduates and graduate students to compete for prestigious scholarships.

Strategies:

- Identify students who have a high potential for academic excellence and success at the national level.
- Introduce identified students to opportunities.
- Use senior students and alumni who have achieved national recognition as scholars in the recruitment of potential students.

Goal 2. Student Development - Assure student success by maintaining a collegial environment that enhances their performance in academic pursuits, enriches their personal growth, and prepares them for productive careers in society.

Critical Success Factors:

- Recruit and enroll at least 10% undergraduate and graduate students from socio-economically and culturally diverse backgrounds.
- Maintain an enrollment of 15-20 undergraduate students in the Entomology program.
- Provide competitive scholarships for undergraduate students in Entomology who maintain at least a 3.0 Grade Point Average.
- Provide internship opportunities for all undergraduate students to gain experience in conducting research and/or extension programs.
- Maintain balanced and relevant curricula for undergraduate and graduate students that emphasize a rigorous scientific background and preparation for work in professional careers through frequent review of course option sheets for undergraduates, and core requirements and plans of study for graduate students.
- Achieve at least a 60% graduation rate for undergraduates.
- Maintain an enrollment of 30-35 graduate students in the combined Entomology and Plant Pathology programs.
- Provide competitive graduate student stipends as determined by comparison with other national entomology and plant pathology graduate programs.
- Provide competent and supportive advisement for all undergraduate and graduate students enrolled in Entomology and Plant Pathology by promoting regular attendance at workshops and other professional development activities by faculty.
- Provide all students with financial support to participate in at least 1 national and/or regional professional society meeting during their degree programs.
- Achieve a 90% or greater satisfaction in Entomology and Plant Pathology degree programs as measured by student assessment.

Objectives:

Objective 2.1: Improve methods for recruitment and retention of highly qualified students for undergraduate and graduate degree programs.

Strategies:

- Cooperate/collaborate with existing student recruitment programs of the University.
- Direct educational and promotional efforts to high school science teachers/classes and vocational agriculture programs throughout Oklahoma.
- Increase participation in on-campus programs such as summer workshops for elementary and high school science teachers.
- Utilize resources such as the 'insect-zoo' to increase interest in Entomology among elementary and secondary school students through presentations in schools and at science fairs and other appropriate public venues.

- Maintain positive associations with alumni in educational/research institutions and businesses to increase support in promoting the Department of Entomology and Plant Pathology.
- Advertise opportunities for graduate education through professional publications and societies.

Objective 2.2: Enhance the quality and relevance of undergraduate courses offered in support of degree programs throughout the University.

Strategies:

- Consult with faculty in departments whose students are served through course work in Entomology and Plant Pathology to assure that course content and scheduling is appropriate.
- Make a continuing commitment to instruction of undergraduate courses by highly qualified, tenure-track faculty.
- Continually improve performance of faculty and teaching assistants through their participation in workshops, by in-class peer evaluation, and annual review of syllabi and other teaching materials.
- Continue the long-standing tradition in this Department wherein professors attend all course lecture and laboratory sessions to increase interactions with students.
- Promote a culture in the Department wherein success of all students attains a high priority among all faculty.

Objective 2.3: Increase funding for support of undergraduate scholarships and graduate assistantships.

Strategies:

- Maintain ties with alumni and seek assistance in building sources of funding for scholarships and fellowships.
- Enhance relationships with business and industry groups who are supportive of high-quality educational programs and benefit from a highly competent pool of prospective employees.
- Promote effective grantsmanship among Departmental faculty that will increase available funds to support students.
- Encourage highly qualified students to compete for scholarships/fellowships awarded within the University and by foundations and professional societies.

Objective 2.4: Improve opportunities for participation of undergraduate students in research and extension programs of Entomology and Plant Pathology.

Strategies:

- Provide funding, materials, and workspace for undergraduate students to plan and conduct research and/or extension projects under the supervision of faculty of the Department and participate in publications and professional presentations.
- Promote research opportunities for students with United States Department of Agriculture scientists who are interested in supervising student projects in association with their research programs.
- Establish ties with business and industry groups who are interested in sponsoring summer internships for students.
- Organize visitation/observation opportunities for students who wish to travel with faculty to research sites, grower meetings, or field days to observe professionals 'on the job.'

Objective 2.5: Maintain high quality and consistency in advisement/mentoring provided for both undergraduate and graduate students.

Strategies:

- All advisement of undergraduate students to be done by tenure-track faculty.
- Insure that all advisement of graduate students is done by members of the Graduate Faculty of the University.
- Maintain frequent communication of undergraduate advisors and student advisees.
- Require at least semi-annual meetings of graduate students with supervisory committees.
- Effectively match course work plans and research activities of undergraduate and graduate students with career goals.

Objective 2.6: Promote professional development and acquisition of skills to enhance success of graduates throughout their professional careers.

Strategies:

- Encourage participation, particularly by undergraduate students, in activities and services offered by the University through College of Agricultural Sciences and Natural Resources Career Services.
- Enroll students in courses designed to enhance their understanding of professional responsibilities and development of career skills.
- Develop capabilities for effective communication through courses that emphasize skills for scientific presentations.
- Encourage participation in professional societies through attendance at meetings and presentation of results of research and/or extension projects.

Objective 2.7: Promote interactions of students with potential employers to enhance career opportunities.

Strategies:

- Promote student participation in industry/trade shows to interact with potential employers and to attend on-campus programs sponsored by College of Agricultural Sciences and Natural Resources.
- Encourage student participation in professional societies to increase opportunities for interaction with representatives of academic institutions and industry groups.

Goal 3. Human Resources – Recruit, retain, and develop an outstanding faculty and staff within a collegial atmosphere that recognizes diverse contributions.

Critical Success Factors:

- Recruit and retain outstanding faculty to achieve our anticipated future needs:
Anticipated specialist position in the next 5 years:
 - a) Medical/Veterinary Entomologist
 - b) Insect Physiologist/Toxicologist
 - c) Horticultural Disease Specialist
 - d) Plant Molecular Biology/Host Plant Resistance
 - e) Soil borne Diseases
 - f) Insect Systemist
- Provide a minimum of 1 training opportunity for each technical and clerical staff per year.
- Present a science-based seminar series consisting of 1 non-departmental guest speaker per month and at least 1 non-OSU guest speaker per semester.
- Maintain and enhance effective and qualified support staff members to provide service and assistance in the areas of research, extension, personnel management, accounting, purchasing, travel and management of sponsored programs through effective use of annual appraisals and performance evaluations, and staff development.

Objectives:

Objective 3.1: Evaluate all faculty positions as they may become open to be able to hire qualified faculty to maintain the strengths of the department as the programs evolve or needs arise.

- 3.1.1:** Recruit and hire a faculty member to establish research and teaching programs in insect physiology/toxicology.
- 3.1.2:** Recruit and hire a faculty member to establish research and teaching programs in insect systematics/morphology.
- 3.1.3:** Recruit and hire a faculty member to establish a research program in plant molecular biology.
- 3.1.4:** Recruit and hire a faculty member to establish a research program related to soil borne diseases and to teach relevant plant pathology courses.
- 3.1.5:** Recruit and hire a faculty member to initiate research, teaching and extension programs in veterinary/medical entomology.
- 3.1.6:** Recruit and hire a faculty member to assume the responsibilities of an extension/teaching program in horticultural diseases.

Strategies:

- Assess and prioritize departmental needs in research, teaching, and extension programs created by retirement or separation of existing faculty.
- Proposals for prioritized new faculty hires will be carefully justified with documentation of relevance and will meet the mission of the Department and Division of Agricultural Sciences and Natural Resources.
- Each new faculty search will be conducted under the OSU hiring guidelines through a departmental selection committee with Division of Agricultural Sciences and Natural Resources Administration. Search for all new faculty positions will include national and international advertising and on-site interviews of top candidates.

Objective 3.2: Recruit and hire the most qualified technical and clerical staff available for open positions.

Strategies:

- Clerical and technical staff vacancies will be identified and evaluated for continued need of position or possible reclassification of position as needs of the department dictate.
- Advertise staff vacancies through OSU employment web site, Departmental web site and other state and regional sources as needed to encourage diverse, qualified applicants to apply.

Objective 3.3: Establish mentoring programs for new faculty linked to Reappointment, Promotion, and Tenure Review Committee evaluations and appraisals.

Strategies:

- Upon hire all new faculty will be instructed by the Department Head in the procedures for re-appointment, promotion and tenure used by the Department and OSU and will be provided with a copy of the Departmental Division of Agricultural Sciences and Natural Resources, and OSU guidelines.
- Continue Departmental policy that all annual Department Head appraisals of non-tenured assistant professors and tenured associate professors are reviewed by the Reappointment, Promotion, and Tenure Review Committee and that this committee responds in writing to the Department Head regarding their views. The Department Head will share these comments with the faculty being reviewed.
- The Reappointment, Promotion, and Tenure Review Committee will work with the Department Head to encourage a faculty member to be a mentor for new faculty hire.

Objective 3.4: Encourage Faculty sabbaticals, short courses or scientist exchange visits.

Strategies:

- The Department will encourage eligible faculty to take sabbaticals according to the Division of Agricultural Sciences and Natural Resources and OSU guidelines.
- The Department will continue to encourage and support faculty to participate in short courses or scientist exchange visits.

Objective 3.5: Provide training opportunities for technical and clerical staff to enhance and advance their professional careers.

Strategies:

- The Department will use the annual performance appraisal process to identify training needs for clerical and technical staff.
- The Department will encourage and support each technical and clerical staff member to attend Faculty and Staff Development Opportunities as offered by OSU Human Resources.

Goal 4. Economic Development – Enhance the quality of life by contributing to the human, economic, and cultural development of Oklahomans.

Critical Success Factors:

- Through collaborations with industry, develop licenses, patents, and distance learning/outreach programs.
- Provide curricula and training to meet the needs of agricultural, pest management, plant production and management businesses.
- Through interdepartmental collaboration, develop and release products (e.g. – Crop varieties, pest management tools, informational materials, etc.) designed to facilitate the quality of life in Oklahoma.
- Be responsible for the promotion of human safety and health of Oklahomans by providing extensive current updates on the safe use of pesticides by the public.

Objectives:

Objective 4.1: In accordance with OSU guidelines pursue research in collaboration with government and industry that generates products for the economic enhancement of Oklahomans.

Strategies:

- Patent and/or license intellectual property in collaboration with government and industry.
- Produce educational or training programs that help Oklahoma based companies.
- Be receptive to companies with ideas about relevant research with which OSU might participate; approach the appropriate companies with potential for commercial development of OSU generated research.

Objective 4.2: Provide pest management training for professionals, curricula for students and outreach programs that meet the needs of commercial agriculture, horticulture and pest management businesses.

Strategies:

- Maintain and develop training and education programs for commercial and individual businesses conducting pest management activities.
- Maintain and develop innovative outreach programs.
- Provide specialized curricula that address the specific needs of businesses and public entities.

Objective 4.3: Provide specific assistance to agricultural commodity groups to reduce pest management costs and increase economic competitiveness.

Strategies:

- Maintain cooperative efforts with Oklahoma agricultural commodity groups

Objective 4.4: Provide continuing training and release of information to the public regarding the safe and reduced use of pesticide and the proper disposal of pesticide containers.

Strategies:

- Focus all educational and outreach materials on the principles of Integrated Pest Management, using multiple tactics to manage pests, including the appropriate selection, timing, and application of pesticides.
- Prepare and update written recommendations for the appropriate and safe use, handling, storage, and disposal of pesticides in forms targeted for various audiences I the state and nation.
- Provide educational opportunities to certified pesticide applicators including but not limited to, the appropriate and safe use, handling, storage and disposal of pesticides.
- Provide instruction to public response groups (County Extension Educators, Master Gardeners, City and County Health and Safety departments).
- Provide instruction to the general public regarding the appropriate and safe use, handling, storage and disposal of pesticides.

Objective 4.5: Provide insect and plant disease diagnostic services for educational, research, and outreach purposes.

Strategies:

- Maintain and enhance digital insect diagnostics service
- Maintain and produce rapid, accurate disease diagnostic service
- Maintain and enhance the hybridoma, tick rearing, and insect museum facilities

Goal 5. Leverage Resources – Make the best and most productive use of physical and financial resources to create optimal opportunities to achieve targeted national and international prominence.

Critical Success Factors:

- On average 40% of the departmental maintenance budget will be committed to funding graduate research assistants and graduate teaching assistants.
- On average 30% of the departmental maintenance budget will be directed to the day to day operation of the department and the maintenance of facilities.
- On average 30% of the departmental maintenance budget will be dedicated to funding faculty research and extension programs and the departmental teaching program.
- Provide resources and support for the Plant Disease and Insect Diagnostic Lab, and departmental research land and facilities such as the K.C. Emerson Museum and the Mycology collection.
- Support the Hybridoma Center and the Core Facility's role as providers of scientific services.
- Faculty will continue to actively seek external funding through grants and unrestricted industry support to support research, extension and teaching activities specified through the annual appraisal program; and by Faculty Reappointment, Promotion and Tenure guidelines.
- Support the continuation of the Structural and Urban Endowment that supports the Urban Entomology program including the operation of the Pinkston Education Facility.

Objectives:

Objective 5.1: Prepare and submit an annual financial budget management plan based on the fiscal history and needs of the department in the three areas of research, Oklahoma Agricultural Experiment Station budget, Oklahoma Cooperative Extension Service budget, and College of Agricultural Sciences and Natural Resources teaching budget.

Strategies:

- Develop and submit yearly budget management plan outlining the Department's needs to Division of Agricultural Sciences and Natural Resources Administration to adequately meet the department's maintenance expenditures for research, extension and teaching.
- Emphasize to Division of Agricultural Sciences and Natural Resources Administration the desire to commit 40% of funds to graduate research assistants and graduate teaching assistants.
- Allocate funds granted by Division of Agricultural Sciences and Natural Resources Administration to faculty projects and department maintenance accounts.

Objective 5.2: Establish a department equipment plan to assess current equipment status and determine short term and long term equipment needs.

Strategies:

- Prioritize short and long term equipment needs and develop a financial plan to meet those needs.
- Develop a financial plan to assist in replacement of obsolete or broken teaching equipment.
- Prepare and maintain a plan for supervision and care of current common use equipment in Noble Research Center that is used by faculty and lab technicians from multiple departments.

Objective 5.3: Establish a long term strategy for acquisition of key equipment with the use of Division of Agricultural Sciences and Natural Resources development funds, shared grant funds, equipment grants and Facilities and Administration funds.

Strategies:

- Encourage faculty to prepare and submit large equipment grant proposals including collaborative grants across Division of Agricultural Sciences and Natural Resources and the University.
- Continue to use Facilities and Administration funds received from departmental grants to assist in the purchase of new equipment and repair current equipment as needed.

Objective 5.4: Continue to evaluate all departmental resources, including laboratory and office space, to ensure the optimum use of such space to meet current and long term research, teaching and extension goals and needs.

Strategies:

- The Department will work closely with the Division of Agricultural Sciences and Natural Resources Administration in the utilization of space in Noble Research Center.
- Evaluate teaching labs, research labs, and classrooms to ensure facilities are kept in good condition.

Objective 5.5: Faculty will work collaboratively to write successful grant proposals within and outside the department.

Strategies:

- Faculty will work closely with the Department Administration and Agriculture Sponsored Programs office to seek funding opportunities.
- Faculty will continue to seek unrestricted research funds for applied research from industries.

Objective 5.6: The Department will seek industries and individuals for the continued support for the Structural and Urban Entomology Endowment and the Stored Products Research and Education Center.

Strategies:

- Interest earned on the Structural and Urban Entomology Endowment will continue to be used to support research in pest control.
- Continue to solicit long-term support from current and new contributors for the Structural and Urban Entomology Endowment.

Goal 6. Image/Pride/Recognition – Present a strong and positive image of OSU’s teaching, research and extension programs in Entomology and Plant Pathology.

Critical Success Factors:

- Faculty and graduate students will participate in at least 1 meeting annually of their respective regional, national or international professional societies.
- Faculty/staff/students will participate in public education, teaching and extension programs representing the University, Division of Agricultural Sciences and Natural Resources, and the Department.
- Faculty will participate in University, College and Departmental Committees as appropriate.
- Each year, at least 2 faculty and students will be nominated for membership in honor societies and/or for awards that recognize professional excellence in research, teaching and extension.
- Faculty will participate in a broad base of professional and commodity organizations that can benefit from our expertise.

Objectives:

Objective 6.1: Encourage all faculty and graduate students to become members of and actively participate in the national professional societies relating to their profession or research expertise.

Strategies:

- Recruit student and faculty participation in the execution of outreach programs (e.g. Annual Insect Exposition, Plant Doctor) that serve to educate the general public.
- Present posters and oral presentations at regional and national meetings.
- Encourage students to participate in educational forums at regional and national meetings such as the Linnaean Games and the DeBary Bowl.
- Recruit at least 1 student and 1 faculty member to serve on organizational committees to establish outreach programming for the regional or national associations.

Objective 6.2: Provide a departmental website that current and is easily accessible by the public.

Strategies:

- Maintain and update the departmental webpage by highlighting departmental activities.
- Publish a periodic electronic newsletter that informs the public of important seasonal developments and alerts relating to insect pests and plant diseases.
- Provide access to updated fact sheets, current reports and other educational materials.
- Develop, present and participate in workshops and symposia for professional societies.
- Encourage participation in editorial review of professional journals, and participate in the infrastructure of the respective disciplinary societies.

Objective 6.3: Identify students, faculty and staff to be considered for professional honors or awards within Division of Agricultural Sciences and Natural Resources, OSU, professional and honorary societies, etc.

Strategies:

- Develop a mechanism to discover and seek opportunities for awards from peers and other professional organizations.
- Recognize state, regional and national accomplishments through the departmental website, newsletters and “Good News” announcements provided by Division of Agricultural Sciences and Natural Resources.
- Designate representatives from faculty, students and staff to gather information on upcoming professional activities and highlight the accomplishments of department members.

Objective 6.4: Continue to promote the department through public activities and create a mechanism for faculty to present entertaining, informative programs to the general public related to the disciplines or activities of the department.

Strategies:

- Expand and improve the Insect Zoo.
- Provide access to the K.C. Emerson Insect Museum for secondary schools and youth organizations.
- Provide educational opportunities to public education entities on arthropod and plant diseases.
- Encourage the Sanborn Entomology Club to participate in outside educational activities.
- Participate in outreach local, municipal and state activities that provide outlets for educational events to the general public such as the garden shows, AGEXPO, county and state fairs, etc.