Texas (Prairie View A&M University) Annual Report - FY2024

Report Status: Approved as of 06/30/2025

Contributing Organizations

Prairie View A&M University

Executive Summary

Overview

In Fiscal Year 2024 (October 1, 2023 – September 30, 2024), Prairie View A&M University's College of Agriculture, Food, and Natural Resources (CAFNR) made substantial progress in addressing state and national priorities through integrated Research and Extension programs. Across all capacity-funded efforts, PVAMU engaged over **2,525,790 individuals,** reached **441 farmers**, trained over **4,905 youth** in entrepreneurship, and provided direct technical support to over **460 livestock producers**. These activities addressed critical issues in sustainable agriculture, health, youth development, diet-related illnesses, environmental stewardship, and community and economic resilience.

The University's research arm, supported by 13 approved Evans-Allen-funded projects, made strides in Animal, Plant, Social Sciences and Allied Research, Food and Nutrition and Natural Resources and Environment Sciences. Research teams translated genetic and phenotypic insights into actionable outcomes—identifying molecular markers for breeding, improving fertility through genomic analyses, and developing sustainable soil amendments like biochar. Simultaneously, Extension teams mobilized statewide to deliver community-based programs focused on public health, economic empowerment, STEM engagement, and natural resource management.

This joint approach reflected the land-grant mission in action: advancing applied science while directly supporting communities. The university's investments in precision agriculture, AI-integrated tools, and novel production systems—alongside dynamic community outreach—enhanced capacity, expanded partnerships, and contributed to more expanded access to knowledge and resources across Texas.

Extension Highlights:

- **The Workforce Academy** offered no-cost training in high-demand fields like nursing, construction and cybersecurity to **1,250 adults.**
- **Nutrition education** programs like SEAL and EFNEP served over **6,900 participants** with measurable impacts on dietary behaviors and food resource management.
- **Leadership and STEM programs** engaged more than **4,900 youth**, increasing aspirations for higher education and STEM careers.

- The **LEAD diabetes self-management program** supported **600 individuals** through digital tools.
- **Wellness in Houston** outreach efforts, spanning six counties within Greater Houston involved 49,000 in nutrition workshops and health screenings.
- **The Business in Development Academy** helped **125 business owners** navigate state contracting, resulting in **29 contract submissions valued at $705,000.**
- Extension supported **urban agriculture**, **livestock systems**, **feral hog management**, **homeownership**, and **workforce development**, helping local communities build resilience and economic opportunity.

Research Highlights:

- **In FY 2024, 13 Evans-Allen-funded research projects** advanced PVAMU's land grant mission in sustainable agriculture, health, environment, and livestock systems.
- **27 peer-reviewed publications and presentations** disseminated project results nationally, showcasing the breadth and depth of PVAMU's research enterprise. disseminated project results nationally.
- Major accomplishments include:
  - Discovery of shade-signaling gene regulation in sorghum.
  - Genome-wide association studies on sweet potato self-compatibility.
  - Multi-omics fertility biomarker discovery in Alpine and Spanish buck sperm.
  - Use of Spirulina platensis in poultry diets to enhance egg quality and health biomarkers.
  - Biochar development using Juncus plants for carbon-rich soil amendments.
  - COMET-Farm modeling to track soil health dynamics and cropping systems.
  - Integration of AI and UAV technologies for early detection of crop stress .
  - Deployment of grow-safe units and feed mixers to measure goat methane emissions.

Prairie View A&M University’s FY 2024 accomplishments illustrate a holistic approach to Research and Extension that bridges innovation with practical community impact. These integrated efforts support the NIFA strategic goals of strengthening local economies, improving health, ensuring food security, and promoting sustainable agricultural systems. The institution remains committed to serving communities across Texas and advancing science-driven solutions through broad-based community programming to increase quality of life for Americans and ensure national security.

Critical Issue: Adult and Community Leadership (1862)

N/A 1862 Critical Issue

Critical Issue: Agriculture Production (1862)

N/A 1862 Critical Issue

Critical Issue: Environmental Management (1890)

Efforts under this issue focused on watershed modeling. In addition, efforts were made for biochar production for soil health enhancement. Research and outreach included using AI, UAVs, and COMET-Farm modeling to monitor soil and crop health. Extension agents led field days and workshops connecting the farmers, conservation practices, and organic amendments. Collaborations with USDA, community partners, and CARC scientists enhanced applied research outcomes and stakeholder education.

- Optimized biochar applications using Juncus-derived material under South Texas conditions.
- Advanced a FEWH Nexus model to enhance environmental resilience in local communities.
- Deployed smart practices and measured impact on soil and water quality.
- Tracked regional water scarcity trends and modeled streamflow in "Matagorda Bay watershed" in Texas.

Critical Issue: Fostering Strong Families (1890)

PVAMU addressed community needs through mental health education, parenting workshops, and financial literacy training. The "Mind Matters" curriculum and inaugural mental health conference helped normalize discussions on trauma and well-being. Life skills programming, including memory workshops and Balanced Living sessions, reached a broad range of audiences. Family systems were strengthened through peer-led parenting sessions and tools that reduced stress, improved communication, and enhanced financial resilience.

- Conducted mental health workshops with over 3,604 participants.
- Delivered financial literacy and parenting programs to 602 individuals and 243 parents.
- Hosted the inaugural mental health conference with wide community engagement.

Critical Issue: Community and Economic Development (1862)

N/A 1862 Critical Issue

Critical Issue: Community and Economic Development (1890)

Prairie View A&M University's work in this area centered on economic mobility, small business development, workforce training, and homeownership education. Through Extension programming, individuals across rural and urban Texas accessed specialized technical assistance for home financing, rehabilitation, and entrepreneurship. The Small Business Training and Assistance Program and the Rural Workforce Academy equipped community members with business planning, project management, and trade certification skills. Meanwhile, the Homebuyer and Rehabilitation Assistance Program helped secure over $4.1 million in USDA applications, while also supporting housing stability and asset building for families. These collective efforts supported job creation, wealth building, and economic resilience in Texas communities.

- Assisted over $4.1 million in USDA housing loan and rehab applications.
- Trained 726 clients and 4,905 youth in business and workforce skills.
- Delivered Rural Workforce Academy certifications in high-demand career fields.

Critical Issue: Connecting Agriculture and Health (1862)

N/A 1862 Critical Issue

Critical Issue: Disaster Management & Outreach (1890)

In FY 2024, Prairie View A&M University recognized the growing importance of disaster preparedness and response in rural and underserved communities. Through its Extension and outreach infrastructure, PVAMU extension agents participated in recovery and readiness education in areas impacted by flooding, extreme weather, and environmental stressors. Workshops and technical assistance were conducted to support livestock and crop producers with post-disaster recovery planning, emergency grazing strategies, and infrastructure resilience. This work complemented ongoing climate-smart

agriculture initiatives and strengthened partnerships with local and state emergency management agencies.

- Delivered Extension workshops focused on disaster recovery and emergency preparedness.
- Provided technical support on post-disaster land use, animal care, and water quality protection.
- Enhanced collaboration with emergency response agencies to support agricultural resilience.

Critical Issue: Food Security in Texas Communities (1890)

Through the "Wellness in Houston" initiative and other outreach efforts, Prairie View A&M University expanded access to healthy food, nutrition education, and community gardening in underserved regions. Extension programs reached more than 40,000 individuals across Harris, Montgomery, Waller, Fort Bend, Galveston, and Brazoria counties through health screenings, wellness fairs, and food security campaigns. Over 19,000 participants were engaged in community education focused on reducing chronic disease risk. PVAMU's 4-H and Youth Development Program helped spark interest in agricultural careers, while healthy food demonstrations encouraged new habits. Additionally, more than 200 pounds of fresh produce were harvested from PVAMU-supported gardens and donated to food-insecure households.

- Addressed nutrition and chronic disease prevention in Greater Houston.
- Reached over 40,000 individuals through screenings and inspired 19,000 to adopt healthier habits.
- Distributed over 200 pounds of produce annually through community gardens.
- Engaged 75% of youth participants in agriculture-focused career awareness.
- Supported healthy eating behaviors with over 85% of participants planning to adopt new recipes.

Critical Issue: Food Safety and Education (1890)

In FY 2024, Prairie View A&M University advanced food safety education across Texas through community-based programming integrated into wellness and nutrition education. The EFNEP and SEAL programs provided hands-on food safety instruction covering proper handling, storage, sanitation, and foodborne illness prevention. These efforts targeted food-insecure populations, youth, adults, and individuals transitioning from institutional settings.

Quantitative impacts included:

- **96%** of participants improved diet quality indicators.
- **91%** showed gains in managing food resources.
- **79%** enhanced food safety behaviors.
- **54%** increased awareness and access to food security resources.

These results reflect PVAMU's commitment to creating healthier communities by building individual and family capacity in safe food practices and informed nutrition.

Critical Issue: Health and Wellness (1862)

N/A 1862 Critical Issue

Critical Issue: Sustainable Livestock Management (1890)

FY 2024 saw significant advancements in poultry and ruminant nutrition research and outreach. Research initiatives explored Spirulina's impact on poultry performance and fertility genomics in goats

and bulls. A new project using hemp feed additives launched alongside infrastructure improvements like GrowSafe units. Extension programs reached over 105,000 Texans through more than 27 educational programs focused on livestock management, including beef cattle, small ruminants, pasture systems, parasite control, and farm financial literacy. These integrated efforts supported small-acreage producers with timely solutions and science-based practices.

- Evaluated Spirulina supplementation in poultry to improve productivity and egg quality.
- Identified genomic markers of fertility in buck and bull sperm through multi-omics research.
- Launched a methane emission reduction study using hemp-based feed additives in goats.
- Installed and calibrated 16 GrowSafe feed monitoring units to support goat efficiency trials.
- Delivered over 27 livestock management education programs to 460 producers across Texas, reaching over 105,000 individuals.

Critical Issue: Natural Resources and the Environment (1862)

N/A 1862 Critical Issue

Critical Issue: Healthy Lifestyles (1890)

Through diabetes awareness education, nutrition programming, and physical activity initiatives, PVAMU enhanced wellness literacy in vulnerable communities. Research on precision nutrition supported evidence-based program delivery. The SEAL and EFNEP programs reached thousands with practical knowledge about healthy eating, food safety, childhood chronic diseases and active lifestyles. The LEAD diabetes program engaged hundreds through bilingual classes and digital tools, while outreach events expanded reach into schools and public venues.

- Delivered SEAL and EFNEP nutrition programs to over 6,931 participants.
- Implemented the LEAD program to reach 600 individuals for diabetes education.
- Provided hands-on youth cooking, gardening, and physical activity programming.
- Delivered SEAL and EFNEP nutrition programs to over 6,931 participants.
- Implemented the LEAD program to reach 600 individuals for diabetes education.
- Provided hands-on youth cooking, gardening, and physical activity programming.

Critical Issue: Crop Production and Utilization (1890)

Prairie View A&M University advanced sustainable crop innovation through strategic Research and Extension collaboration. Researchers made notable progress in understanding shade signaling and shoot branching in sorghum by identifying marker genes that regulate these traits that are critical for optimizing plant density and yield in changing environments. Another project conducted a genome-wide association study (GWAS) in sweet potato, sequencing transcriptomes and evaluating over 100 F2 progenies for dry matter, antioxidants, anthocyanins, and flavonoids to inform marker-assisted breeding strategies. Additional research efforts focused on expanding controlled-environment trials, identifying optimal planting conditions, and improving genotype resilience.

On the Extension front, PVAMU's Agriculture and Natural Resources (AgNR) Unit implemented a robust agriculture program. It included statewide demonstrations of soilless growing systems, the deployment of four demonstration units, and the development of six agricultural fact sheets. Training efforts involved six agents and nine volunteers who provided direct assistance and instruction to producers. Ten formal urban agriculture programs reached 441 farmers across Texas, and three needs-assessment surveys

were conducted to guide future programming. These collaborative efforts helped improve grower capacity, sustainable practices, and crop productivity.

Critical Issue: Youth Development and Leadership (1862)

N/A 1862 Critical Issue

Critical Issue: Youth Readiness for Life and Career (1890)

Youth programming at Prairie View A&M University in FY 2024 empowered participants with critical life and career skills through an integrated approach involving STEM exploration, leadership development, and civic engagement. The university's 4-H program offered experiential learning opportunities through national conferences, state competitions, youth leadership camps, and school-based programs. These experiences cultivated decision-making, communication, and teamwork, positioning students for long-term academic and career success.

The Science, Technology, Engineering, and Mathematics (STEM) curriculum served over 477 students with exposure to robotics, coding, algae bioeducation, and environmental science expanding awareness of high-demand, technology-driven careers. In parallel, over 191 teen leaders took on roles in planning and leading programs, while 583 youth participated in educational contests and leadership labs that sharpened public speaking, critical thinking, and interpersonal competencies.

Special initiatives such as the Research Extension Apprenticeship Program, Tech Changemakers, and 4-H Day at the Capitol further connected youth to real-world applications and civic awareness. These multifaceted experiences improved post-secondary aspirations, with **82%** of participants reporting increased interest in college and **92%** expressing interest in pursuing STEM-related careers or hobbies.

Merit and Scientific Peer Review Processes

Updates

College of Agriculture, Food, and Natural Resources (CAFNR) utilizes structured merit and scientific peer review processes to guide resource allocation, ensure program quality, and support accountability across both Extension and Research activities.

Merit Review— PVAMU Extension Program
All Extension programs supported by Smith-Lever and Section 1444/1445 funds undergo a structured merit review. A review panel composed of the Executive Associate Director of PVAMU Extension, Program Leaders, Specialists, the Dean of CAFNR, the Executive Associate Director of the Cooperative Agricultural Research Center (CARC), and faculty reviewers evaluate programs for alignment with identified needs, program structure, and outcome orientation.

Merit Review – Evans-Allen Research
All Evans-Allen research proposals are evaluated through an internal merit review process led by the Executive Associate Director of the CARC, in collaboration with department heads, senior research faculty, and the Dean of CAFNR. Criteria include alignment with institutional goals, feasibility, and relevance to strategic systems.

Scientific Peer Review— Evans-Allen Research
Each research proposal is reviewed by a minimum of three qualified subject matter experts. The review assesses methodological soundness, originality, and practical relevance. Proposals are then routed through the institutional quality assurance process, including the Vice President for Research and the Office of Sponsored Programs.

This dual-layered process ensures that CAFNR programs and projects are high-quality, strategically relevant, and aligned with USDA expectations.

Stakeholder Input

Actions to seek stakeholder input that encouraged their participation with a brief explanation

No significant changes were made to the methods for gathering stakeholder input from the Plan of Work. However, the use of technology to enhance participation—such as digital surveys and virtual feedback during webinars—was expanded in FY 2024 to reach broader and harder-to-access audiences. Additionally, there was increased integration of stakeholder feedback into cross-disciplinary projects, particularly in food access, disaster recovery, and climate-resilient agriculture.

Methods to identify individuals and groups and brief explanation

The key enhancement was the formal launch of the PVAMU Needs Assessment Survey in the late 2024 FY. This was not detailed in the original Plan of Work but became a vital tool for capturing broader input. It led to data-driven revisions to the institution's critical issues and strengthened alignment with both local and statewide concerns.

Methods for collecting stakeholder input and brief explanation

A key enhancement during FY 2024 was the development and implementation of the formal **PVAMU Needs Assessment Survey**, which was not included in the original Plan of Work. This initiative allowed for broader data collection across departments and helped reshape the university's Critical Issues based on verified community needs. Additionally, increased use of digital survey tools and interactive platforms improved response rates and allowed for timely feedback analysis.

The primary approaches included: Surveys and Questionnaires, Focus Groups and Community Listening Sessions, Advisory Committees, Direct Communication and Informal Input

A statement of how the input will be considered and brief explanation of what you learned from your stakeholders

Prairie View A&M University used stakeholder input gathered through the FY 2024 PVAMU Needs Assessment Survey, program advisory groups, and event-based feedback to refine its Research and Extension priorities and guide the implementation of the Plan of Work. This input directly influenced the alignment of programmatic efforts with real-world needs expressed by Texas communities. The university updated its list of **critical issues** to better reflect cross-cutting concerns such as workforce development, community health, and sustainable food systems. Research projects under Evans-Allen funding increasingly focused on stakeholder-driven challenges, such as biochar for soil health, shade signaling in crops, and livestock reproductive efficiency.

Highlighted Results by Project or Program

Type	Projects / Programs
Projects / Programs without a Critical Issue	**0**

Not Provided