

Review Report

Contributing Organizations

Prairie View A&M University

Directors

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Executive Summary

Overview

The Prairie View A&M University (PVAMU) Land-Grant operates the Cooperative Extension Program (CEP) in collaboration with federal, state, and local governments. Within this framework, Cooperative Extension educators, also known as agents, serve as intermediaries, interpreting scientific knowledge for the public, motivating action, and facilitating community preparedness for a better quality of life. They play a crucial role in disaster response, forging partnerships, and leveraging online platforms for engagement. Supported by program specialists, these agents deliver both specialized and interdisciplinary initiatives aimed at tackling key issues. Across 56 counties in Texas, Extension agents pioneer innovative programs tailored to meet the specific needs of their clientele and communities. Through various educational events, they made a significant impact, with monthly reports indicating 221,054 direct and indirect engagements. Collaborative efforts have led to the establishment of 75 partnerships statewide, bolstering outreach strategies to cater to diverse demographics including youth, small-scale farmers, and residents of rural and urban areas. Additionally, virtual training sessions, workshops, and youth camps have successfully attracted new participants. Extension staff and volunteers have played a pivotal role in expanding the reach of educational programs through meticulous planning, local advisory committee support, and strategic marketing. Identifying emerging needs, the staff actively seek external funding opportunities to ensure the delivery of relevant services to underserved families and communities. Prominent researches in the Cooperative Agricultural Research Center (CARC) in the College of Agriculture, Food, and Natural Resources (CAFNR) pursue studies that are directly aligned with the strategic plans of USDA and NIFA as well as the College's strategic action plans.

The primary focus of the POW is on research that extends new knowledge and on extension activities that advance agriculture, social, economic, and environmental well-being. This hand-in-hand working relationship between research and extension is important to be inclusive of working with federal, state, and local agendas. Prairie View A&M University has a research and demonstration farm, which serves as a model platform for hands-on teaching, novel research, and engaging clientele. The Cooperative Extension Program responds to the needs of Texans, with emphasis on the underserved and socially disadvantaged population. The work of both CARC and CEP is integrated and guided by several vital systems: 1) Animal, 2) Plant, 3) Food, 4) Natural Resources and Environmental, and 5) Social and Applied Systems. Hence, the incorporation of CEP and CARC strengthens the capacity of CAFNR, both within, as well as external to, PVAMU, and it positions CAFNR to be a transforming leader.

The scientists pursue relevant questions using cutting edge tools in the conduct of original research in the areas of animals, plants, food and nutrition, natural resources and environmental sciences, and social systems. We are now integrating Artificial Intelligence (AI) into each of these five systems to tackle real-world challenges and to produce science-based solutions. The results are directly relevant to ensuring food security and other critical needs and to enhance the quality of life for Americans.

Recently, the researchers have developed Evans Allen proposals addressing the critical issues and the following projects have been approved by NIFA and that the research is ongoing:

Building Capacity in Precision Nutrition to Address Obesity and Diabetes in Underserved Communities by Dr. Janet Antwi.

From Farm to Pharmacy: Value Addition in the Production of Medicinal Crops by Dr. Aruna Weerasooriya.

Electrical Conductivity (EC) Variability by Soil Texture and Landscape Position in Te by Dr. Richard Griffin.

Development and Evaluation of Value-added Goat Meat Products by Dr. Lea Kinman.

Livestock waste management for microalgae and crop cultivation as sustainable agriculture by Dr. Atikur Rahman.

Microalgae as an alternative, “greener” and sustainable feed protein and high-value supplement in chicken diets by Dr. Jayant Lohakare.

Management of Agriculture, Natural Resources, and Environment using Innovative Approaches by Dr. Ripendra Awal.

Climate Change: Impacts for Socially Disadvantaged Farmers, Landowners & Communities of Color (PVAMU) by Dr. Ali Fares.

The Research Outreach Engagement through the Small Farms Institute (SFI) by Dr. Clarence Bunch.

Expanding research capacity in sustainable and climate-smart crop production strategies to support small-scale rural and urban farmers by Dr. Peter Ampim.

Genome-Wide Association Studies for Marker-Assisted Breeding of Specialty Sweet-potatoes by Dr. Ming Gao.

Synergic effects of natural and synthetic feed additives as dietary mitigation of enteric methane emissions in goats by Dr. Negusse Kidane.

Developing slow-controlled release coated nanofertilizers and edible coatings by Dr. Laura Carson.

Genome to Phenome Research on Feed Efficiency and Methane Emission for Sustainable Goat Production by Dr. Liuhong Chen.

Dissecting Natural Variation in Shade Signaling in Sorghum to Improve Planting Density and Crop Yield by Dr. Tesfamichael Kebrom.

Optimization of Biochar Application Rate and Crop Production using a Climate-Smart Approach under South Texas Climate Conditions by Dr. Ram Ray.

Critical Issue: Environmental Management (1890)

N/A

Critical Issue: Adult and Community Leadership (1862)

1862

Critical Issue: Agriculture Production (1862)

1862

Critical Issue: Community and Economic Development (1862)

1862

Critical Issue: Community and Economic Development (1890)

N/A

Critical Issue: Connecting Agriculture and Health (1862)

1862

Critical Issue: Crop Production and Utilization (1890)

N/A

Critical Issue: Disaster Management & Outreach (1890)

N/A

Critical Issue: Food Safety and Education (1890)

N/A

Critical Issue: Food Security in Texas Communities (1890)

N/A

Critical Issue: Fostering Strong Families (1890)

N/A

Critical Issue: Health and Wellness (1862)

1862

Critical Issue: Healthy Lifestyles (1890)

N/A

Critical Issue: Natural Resources and the Environment (1862)

1862

Critical Issue: Preparing Youth for Life and Work (1890)

N/A

Critical Issue: Sustainable Livestock Management (1890)

N/A

Critical Issue: Youth Development and Leadership (1862)

1862

Merit and Scientific Peer Review Process

Merit review is required for extension and research programs. The review panel is comprised of the Cooperative Extension Program, Executive Associate Director, Program Leaders, Specialists, Agents, Dean of the College of Agriculture, Food and Natural Resources, Cooperative Agricultural Research Center director, and scientists. These reviews are focused to determine if appropriate strategies are designated to reach the underserved and underrepresented clientele mandated by the USDA.

Stakeholder Input

Actions to seek stakeholder input that encourage their participation

Extension agents also utilize open listening sessions or local town hall meetings, and customer satisfaction surveys as a means of getting grassroots involvement in the program planning and data collection process. The CEP and CARC also work in partnership with staff in Family & Community Health, Agriculture & Natural Resources, Community & Economic Development, and 4-H & Youth Development to address and solve specific problems within the State of Texas. NVivo qualitative statistical analytical software to analyze the issues, extract themes, and synthesized macro-issues into manageable working groups. A very positive step to focus on the key issues in a data-driven process.

In the research front, we aim to pursue relevant research that enhances both fundamental and applied sciences. Research questions are developed based on the USDA and NIFA strategic plans and priority areas, the College's strategic action plans, industry and producer needs, and emerging frontiers in research identified by the funding agencies and others such as the National Academy of Sciences. Research results are published in peer-reviewed journals and presented at local, national, and international conferences.

Methods to identify individuals and groups

"No significant changes"

Methods for collecting stakeholder input

"No significant changes"

Critical Issues

Active

Environmental Management (1890)

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Smart agricultural practices to reduce greenhouse gas (GHG) emissions and enhance carbon sequestration. This critical issue focuses on advancing scientific understanding and providing education and knowledge in managing natural resources and environmental systems using innovative technologies, laboratory and field experiments, numerical modeling, big data analysis, and best management practices. The broad coverage of the critical issue includes water conservation and protection, water quantity and quality, soil health and management, climate variability and climate extremes (e.g., floods and drought), stormwater and groundwater management, best management practices, smart agriculture, smart agricultural techniques, environmental awareness, wildlife management, sustainable forest management, best horticultural practices, and soil fertility for sustained and consistent yields of high quality.

Science Emphasis Areas: Agroclimate Science, Environmental Systems

Research Projects: 7

Extension Programs: 1

Active

Adult and Community Leadership (1862)

Last Updated: 2022

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Adult and community leadership continues to be a major effort within Texas. Volunteers are one of the most important commodities to Texas Extension, ensuring that Extension maintains relevance and helping the agency deliver programs. Utilizing the Extension network with elected county officials, the agency provides professional development and continuing education for elected county officials across Texas. Communities in Texas continue to need trained leaders and to ensure viability and resiliency in the era of diminishing rural economies and disasters.

Science Emphasis Areas: Family & Consumer Sciences, Food Safety, Sustainable Agricultural Production Systems

Research Projects: 0

Extension Programs: 0

Active

Agriculture Production (1862)

Last Updated: 2022

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Texas leads the nation in several areas including cattle, cotton, hay, sheep, goats and mohair. Twenty billion dollars annually is added to the Texas economy from agricultural. Agriculture production will focus primarily on livestock and crop production, and also includes economics, fruit and vegetable production, pest management, range management, wildlife, and horticulture.

Science Emphasis Areas: Agroclimate Science, Bioeconomy, Bioenergy, and Bioproducts, Education and Multicultural Alliances, Environmental Systems, Family & Consumer Sciences, Youth Development

Research Projects: 0

Extension Programs: 0

Active

Community and Economic Development (1862)

Last Updated: 2022

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Efforts in community and economic development are designed to increase the capacity of targeted Texans to respond to rapidly changing socioeconomic and natural forces that impact their community and quality of life through increasing the understanding of these forces and potential responses from both an individual and community perspective. Specific issues include concerns about workforce development, emergency management, community and regional economic viability, and sustainable communities.

Science Emphasis Areas: Education and Multicultural Alliances, Environmental Systems, Family & Consumer Sciences, Food Safety, Sustainable Agricultural Production Systems, Youth Development

Research Projects: 0

Extension Programs: 0

Active

Community and Economic Development (1890)

Last Updated: 2021

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Entrepreneurship opportunities can increase through small business training and consulting. Staff will work with individuals, communities, and groups to inform and educate them on issues related to sustainable housing, disaster response, senior programs and resources, programs for limited resource individuals, asset and wealth building, saving and investing, credit building, debt management, and budgeting. We can also increase community development and community services through non-profit capacity building. Additionally, that address rural prosperity in economic development, technical innovation, improved quality of life, support of a rural workforce, and e-connectivity for rural America as identified by the Task Force on Agriculture and Rural Prosperity programs will be developed and implemented.

Science Emphasis Areas: Family & Consumer Sciences

Research Projects: 0

Extension Programs: 3

Active

Connecting Agriculture and Health (1862)

Last Updated: 2020

Initiated on: 11/26/2019

Term Length: Intermediate (1-5 years)

Today more than ever the connection of agriculture to the foods we consume is critical. Consumers must sift through a vast number of sources to find information on agriculture, food, and the connection of these for accurate and unbiased information. This area of work focuses on agriculture, our food, and the connection to health. Research and extension efforts will focus on producing a high-quality food supply, while providing consumers access to evidence-based information to make informed decisions.

Science Emphasis Areas: Education and Multicultural Alliances, Family & Consumer Sciences, Food Safety, Human Nutrition, Sustainable Agricultural Production Systems, Youth Development

Research Projects: 0

Extension Programs: 0

Active

Crop Production and Utilization (1890)

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

There is a need to discover new knowledge about genetics, growth, and disease resistance of field, grain, fruit, and vegetable crops and provide agronomic information through research. This includes high-value low volume specialty crop production and major crops to improve income and evaluate practices and systems of crop yield and profit for clientele. The research focuses on less-utilized fruit and vegetables. Various trials, crop growth, development, fertilizer treatments, and cultural practices will be pursued to investigate best management practices for crop production and conduct genetic improvements and biochemical evaluations of plant products.

There is a need to incorporate medicinal plants into agriculture, starting by identifying plants with medicinal properties suitable for local conditions and market demand. We will assess their feasibility by considering factors like land suitability, resources, and infrastructure. We will obtain reliable plant material from botanical gardens or research institutes and establish germplasm collection. We will conduct research trials to determine optimal growing conditions and develop cultivation guidelines. Identify underutilized edible medicinal plants and raise awareness through workshops, emphasizing health benefits, economic benefits, environmental advantages, and food security. We will collaborate with herbal medicine industries, develop value-added products, and support market development. This also includes newly added industrial hemp to evaluate the genetic complexity in the Cannabis genus by characterizing them using botanical, chemical, and genetic fingerprinting and identifying best-performing genotypes in Texas climatic conditions for various end-use. Commercial enhancement of their under-utilized products, and the biotechnological enhancement of the nutritious yields of legumes will also be pursued.

Interest in Urban Agriculture in its many forms is on the rise as urban metroplexes continue to expand. This critical issue will focus on educational programming targeting the education of urban-dwelling clientele and small-acreage landowners. Aquaponics/Hydroponics, backyard poultry, Urban Agriculture Policy & Economics, Food Security, Apiculture, Agribusiness Planning, Farmer's Markets, Community and School Gardens, and Roof Top Farming are some of the broad topics under this critical issue.

Science Emphasis Areas: Sustainable Agricultural Production Systems

Research Projects: 5

Extension Programs: 1

Active

Disaster Management & Outreach (1890)

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

The CAHS seeks to strengthen its capacity and commitment to understand and address disaster issues that impact underserved populations across all four CEP program areas. It also strives to maintain close ties with USDA and related agency personnel while using ongoing work relations with local interest groups. It will utilize a comprehensive emergency management approach and address issues such as refining strategies, addressing health disparities, training, and nurturing collaborative partnerships. The training will encourage a pre-planning culture in times of disaster and give victims access to needed resources to maintain their quality of life and be disaster resilient.

Science Emphasis Areas: Environmental Systems, Family & Consumer Sciences

Research Projects: 0

Extension Programs: 0

Active

Food Safety and Education (1890)

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Food safety is essential to the health and safety of underserved and underrepresented audiences served in Texas. One in six Texans (4,000,000) people become sick, and 240 Texans die from foodborne illnesses. The four groups most vulnerable to foodborne illness comprise 20% of the population: young children, senior adults, pregnant women, and persons with weakened immune systems due to illness or hospitalization. Adults aged 65 and older are at higher risk for hospitalization and death from foodborne illnesses. The Cooperative Extension Program will address food safety by conducting education programs focusing on hand washing, preventing cross-contamination, and keeping foods hot or cold.

To ensure the safety of foods, better understanding of the complete food chain is essential. The research will develop nutritious value-added food products from goat milk, goat meat, and fruits and vegetables produced on the PVAMU farm. The safety of these foods from farm to table will be emphasized, including production, post-harvest storage, processing, distribution, and consumer handling and preparation. Microbial analyses will include conventional, biochemical, immunological, and molecular techniques. Extension will provide outreach and educational programs on the best practices related to food safety to prevent foodborne illness, as well as practices when safe food handling, reducing food waste, and conserving nutrients.

Science Emphasis Areas: Food Safety

Research Projects: 0

Extension Programs: 0

Active

Food Security in Texas Communities (1890)

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Food insecurity affects people globally. In the United States, it has been estimated that 12 percent of the population is food insecure. Texas ranked among the top states with the highest rates of food insecurity in the United States. Food security must be addressed throughout the entire food chain, including production, processing, and distribution. The research will focus on the post-harvest storage and conversion of commodities to safe, nutritious, affordable, and culturally relevant foods to communities. Communities in Texas will serve as models for research that can be applied in other communities nationally and internationally. Collaboration with researchers in plant and animal sciences will be emphasized and fostered.

Science Emphasis Areas: Human Nutrition, Sustainable Agricultural Production Systems

Research Projects: 1

Extension Programs: 1

Active

Fostering Strong Families (1890)

Last Updated: 2021

Term Length: Long-term (>5 years)

If our society's future is our children, then the key to human well-being rests primarily with parents and teachers. Parenting, though still one of the most underrated jobs in society, is beginning to attract some of the attention and consideration it deserves. Success at any job first requires a sound understanding of its purpose. The essential purpose of parenting has not changed throughout history. Financial management provides educational and technical information to limited-resource families to strengthen family systems and resiliency through information to understand how individuals and families obtain and use time, money, and human capital to achieve their standard of living and overall quality of life.

Science Emphasis Areas: Family & Consumer Sciences

Research Projects: 0

Extension Programs: 0

Active

Health and Wellness (1862)

Last Updated: 2022

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

Chronic diseases continue to be the leading cause of morbidity and mortality in Texas. Health and nutrition related diseases such as heart disease, cancer, diabetes, and obesity will be the primary focus of this area. Basic and applied research, and educational programs will focus on prevention and management while helping individuals to understand the consequences of dietary and lifestyle choices. Additionally, the goal of outreach and education is to focus on healthy and safe community environments by creating and sustaining communities that promote health and wellness through prevention.

Science Emphasis Areas: Food Safety, Human Nutrition, Youth Development

Research Projects: 0

Extension Programs: 0

Active

Healthy Lifestyles (1890)

Last Updated: 2021

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

The prevalence and reduction of chronic illness and disease are the focus of health and wellness programming. Risk factors associated with high blood pressure, high cholesterol, excess weight, and lack of physical activity can lead to significant life limitations and death. Other health problems include cardiovascular disease, overweight/obesity, and high cholesterol. All these health issues are exacerbated by poor nutrition, smoking, and inactivity. The combination of increased calorie intake and sedentary lifestyles has serious implications for youth and adults' health and well-being. There is a need to implement nutritional value programs in limited-resource communities to introduce highly nutritious specialty crops.

Science Emphasis Areas: Family & Consumer Sciences

Research Projects: 1

Extension Programs: 1

Active

Natural Resources and the Environment (1862)

Last Updated: 2020

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

This includes research and extension work to serve the needs of clientele through basic and applied research, and extension directed to the problems and their impacts on Texas' natural resources and environment. The focus of this area includes water, range management, wildlife, and environmental stewardship while being mindful of the need for producers to remain profitable.

Science Emphasis Areas: Agroclimate Science, Education and Multicultural Alliances, Environmental Systems, Family & Consumer Sciences, Youth Development

Research Projects: 0

Extension Programs: 0

Active

Preparing Youth for Life and Work (1890)

Last Updated: 2021

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

The program supports youth and their adult leaders. Caring adults help youth navigate adolescence and transition to adulthood. They provide positive learning environments that foster a sense of belonging while facilitating mastery, independence, and generosity for young people. Youth and their adult leaders are empowered to take actions that promote health, develop positive social relationships, and contribute to society. Participants can develop a variety of life skills (leadership, livelihood, cognitive, interpersonal, etc.). This is accomplished primarily in three content areas: civic engagement, healthy living, and science.

Science Emphasis Areas: Youth Development

Research Projects: 0

Extension Programs: 3

Active

Sustainable Livestock Management (1890)

Last Updated: 2023

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

In the food animal industry, livestock production, productivity, management, and processing systems continue to grow in Texas. This issue focuses on improving productivity with a variety of agricultural animals (i.e., cattle, goats, poultry), improving livestock management, technologies, and practices. This will steer multiple research investigations on the biology, physiology, genetics, and nutrition that drive animal health, productivity, reproduction, growth and development, and meat, milk, and egg quality. Economic viability and sustainability of crop systems by analyzing their production, market, and trade will be studied. Additionally, technology will be utilized to determine profitability and

educate farmers and ranchers about developing sustainable farming/ranching operations with economic and long-term viability through in-depth risk management training and best practices that influence animal care and welfare. In addition, the sustainability of livestock systems by analyzing their production, market, and trade will be studied.

Science Emphasis Areas: Sustainable Agricultural Production Systems

Research Projects: 5

Extension Programs: 1

Active

Youth Development and Leadership (1862)

Last Updated: 2022

Initiated on: 11/26/2019

Term Length: Long-term (>5 years)

The youth development and leadership program will focus on enhancing the skills needed for youth to become productive adults. Specifically, this program will serve to highlight the work in Texas associated with project experiences including club projects, curriculum enrichment, and special interests. These areas are represented by various subject matters through five areas of focus: family and community health, agriculture and livestock, leadership and citizenship, natural resources and STEM.

Science Emphasis Areas: Food Safety, Youth Development

Research Projects: 0

Extension Programs: 0

Report Status

Approved as of 07/08/2024

Comments

Executive Summary:

The Executive Summary provides a good overview Prairie View A&M University's (PVAMU) focus on Extension and Research across Texas. The POW clearly and concisely describes the working relationship between research and extension and details PVAMU's collaborations and partnerships that allow the university to respond to the needs of Texans across 56 counties. PVAMU's POW emphasizes the strong commitment of the Cooperative Agricultural Research Center (CARC) in the College of Agriculture, Food, and Natural Resources (CAFNR) and the Cooperative Extension Program (CEP) to meet stakeholder demands for necessary programs addressing critical issues across Texas. The integration of CARC and CEP strengthens the capacity of CAFNR.

Merit and Scientific Peer Review Process:

Merit review is required for extension and research programs. Review panel composition was outlined. To adequately evaluate this section, NIFA had to review the FY2024 POW for a comprehensive description of the Merit and Scientific Peer Review Process.

Stakeholder Input:

PVAMU outlined the actions that their extension agents and researchers take to seek stakeholder input that encourage their participation. Extension agents utilize open listening sessions or local town hall meetings and customer satisfaction surveys as a means of getting grassroots involvement in the program planning and data collection processes. NVivo qualitative statistical analytical software is used to analyze the issues, extract themes, and synthesized macro-issues into manageable working groups.

No significant changes were noted for the 'Methods to identify individuals and groups', 'Methods for collecting stakeholder input', and 'A statement of how the input will be considered' sections. To adequately evaluate these sections, NIFA had to review the FY2024 POW for a description of current methods of identifying, collecting, and considering stakeholder input.

Critical Issues:

Of the ten potential critical issues for 1890's to address in Texas, PVAMU's POW identifies research projects and extension programs in seven critical areas: Environmental Management; Community and Economic Development; Crop Production and Utilization; Food Security in Texas Communities; Healthy Lifestyles; Preparing Youth for Life and Work; and Sustainable Livestock Management. Included across the critical issues are 19 research projects and 11 extension programs. The number of research projects has increased significantly from the 9 research projects reported in FY2024. There was no change in the number of extension programs reported in FY2024.

Comments and Recommendations:

Prairie View A&M University is to be commended on the level of integration of CARC and CEP which allows PVAMU to be responsive to their stakeholder's needs. This is evident through the 221,054 direct and indirect engagements indicated in monthly reports and the increase in the number and nature of proposals submitted by researchers to address several critical issues in Texas.

I did find that the Merit and Scientific Peer Review Process and Stakeholder Input sections to be somewhat lacking in detail. I would encourage PVAMU to minimize the use of "no significant changes" responses, but to alternatively include what the current process is that is not being changed. Since these processes may not change each year, they can be copied/pasted from the previous year along with any updates.

I look forward to reading about PVAMU's accomplishments in future reports.