

Prairie View A&M University Combined Research and Extension Plan of Work 2021-2025

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I. Plan Overview

1. Executive Summary

2021 Prairie View A&M University

Research and Extension Plan Overview

Prairie View A&M University (PVAMU) Cooperative Extension Program (CEP) and Cooperative Agricultural Research Center (CARC) plan for 2021-2025 collective future within the College of Agriculture and Human Sciences (CAHS) at Prairie View A&M University anticipates many challenges and opportunities. The State of Texas has more than 28 million citizens in 254 counties that stretch across 130 million acres of land. One in four Texas children live in poverty, and poverty rates for Latino (33%) and African American children (32%) are nearly three times higher than they are for White (11%) and Asian children (12%). Nineteen percent of Texas children live in “high poverty” neighborhoods and that share is growing. According to the 2017 Ag Census, there are more than 11,000 African American producers with a combination of 946,751 acres in farmland. Of the 408,506 producers in Texas, 37% are women. More than 90 percent of the farms and ranches encompasses family farms, partnerships, or family-held corporations. Therefore, strategic programming and evaluation of culturally relevant, customer-specific outreach assistance is critical in transferring knowledge to farmers and other residents of rural and urban communities to create positive changes.

Texas ranks first in the number of cattle and calves’ operations, which accounts for 13% of the United States’ total. The food and fiber division in Texas totals around \$100 billion. Our goals over the next five-year period are to transform our land grant program to address Texas’ changing agriculture complexity, assist socially disadvantaged and traditionally underserved audiences, and provide leadership to the citizens of Texas. Given the strong history of CARC and CEP, we will be driven by the land grant vision and mission, as will those of CAHS as a whole and the PVAMU as a University.

The CAHS Dean is committed to the land grant research and extension mission and vision and is leading our college’s efforts statewide. CARC and CEP are central to accomplishing the land grant mission of Prairie View A&M University. Prairie View A&M University is part of the Texas A&M University System, which links 11 State of Texas University’s higher education programs under ONE UNIVERSITY concept. According to USDA As a result, CEP and CARC are required to follow the dedication for the discovery of new knowledge and community outreach setting to meet community and society’s needs.

Throughout the 2021-2025 planning period, the primary focus will be on research that extends new knowledge and on extension activities that advance agriculture, social, economic, and environmental well-being. The mission is inclusive of working with federal, state, and local agendas to grow and impact the State of Texas agriculture and the economic sector through research, development, and extension investment.

Prairie View A&M University has a 778-acre 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 CAHS, both within, as well as external to, PVAMU, and it positions CAHS to be a transforming leader.

By strengthening from within, CARC/CEP can build better external ties by creating local advisory committees and other

agencies which mutually benefit and are significant contributors to a structured educational program development system to address identified needs.

A primary goal for the 2021-2025 planning period is to help Texas citizens, with emphasis on the socially disadvantaged and traditionally underserved citizens, to make incremental improvements in food, agricultural, social, and environmental economies. Expanding agriculture, growing jobs, and the economy require research and outreach support by CEP and CARC activities.

This Plan of Work, CAHS' current and future strategic plan, and NIFA's national priorities all report common ideas regarding food, agriculture, and the environment. To address these ideas, the Planned Programs for 2021-2025 are designed to nurture knowledge gained, disseminate information, and advance scientific discoveries to help mitigate social, financial, environmental problems facing Texans today. The issues of sustainable agriculture, mental health and wellness, climate change, ag-bioscience, global food safety and food insecurity, Agrobotics, livestock management, childhood obesity, nutrition, homeless veterans, and teen nutrition peer mentoring all can be impacted by the research and extension programs planned through the PVAMU land grant program.

CARC and CEP will continue to address issues of importance as identified through grassroots and other stakeholder input processes. CARC is the hub for research, and CEP is the center of community education. There are some planned outcomes and impacts scheduled for this planning period.

The Cooperative Agricultural Research Center is taking the following steps and making investments that are critical to planning period outcomes. Highlights of program priorities are:

By 2021, CARC will integrate basic and applied research approaches to advance the science and understanding of agriculture, natural resources, livestock, ag-biosciences, and environmental issues.

By 2021, CARC's new meat laboratory will be complete and prepared to be fully operational.

By 2022, CARC will achieve resiliency through research on demonstration farm with agronomic crops, food, fiber, and ecological systems; will incorporate experiential education on the farm; and will renovate new greenhouse research space and poultry operation.

By 2023, CEP, CARC collaboration among federal, state, and local entities will engage in new research for emerging, specialty, agronomic crops, and emergency management, and disaster education to county Agents.

By 2024, CARC will address issues related to nutrition, food safety/quality, food security/insecurity, and the related impacts on quality of life and examine the efficacy of producing high-value, low-volume medicinal and nutritional products.

Throughout this planning period, CARC is committed to relevant and innovative research strategies. In addition to funding for CARC research faculty, staff, and students, CARC also invests in the International Goat Research Center.

Likewise, the Cooperative Extension Program is taking the following steps as critical to planning period outcomes. Highlights program priorities are:

By 2021, CEP will continue to focus on the individuals and low-income families to improve health, nutrition, safety, and the economic security of Texas families.

By 2022, CEP will grow education programming and outreach capacity in programs such as livestock management, crop production, health and wellness, workforce development, local foods, youth development, social services, and contribute to the building of a sustainable, profitable, and competitive food and fiber system in Texas.

In 2021-2025, CEP will prepare youth to be productive, positive, and equipped with life skills to build local capacity for economic development in Texas communities.

In 2021-2025, CEP will continue to support CAHS and university-wide outreach efforts such as Health Initiatives, Disaster Management, Small Farm Institute Program, and Farmers Market and expand access to Extension education, knowledge, and resources.

The CAHS, through CEP and CARC, will continue to provide leadership to Texas' socially disadvantaged, and traditionally

underserved audiences and leverage and align its resources to meet citizens' and stakeholders' highest needs with the University's greatest strength. We will continue to build and grow collectively and work collaboratively throughout this planning period to advance our mission. To that end, CARC researchers hold joint appointments in CARC and the Department of Agriculture, Nutrition, and Human Ecology. CARC and CEP will continue to partner with multiple colleges at PVAMU, Community-Based Organizations (CBO), local governments, and numerous other stakeholders to solve problems. CARC primary research programs are located on Prairie View A&M's Demonstration Farm and demonstration research projects located in counties. CEP has personnel co-located with Texas A&M AgriLife Extension in 35 counties across Texas. CEP Extension is planning a significant role in both rural and urban initiatives.

CEP and CARC will continue to partner with each other and with multiple external partners to find new ways to educate Texans. We will continue to be characterized by (1) engaging, discovering, and learning from partners, (2) generating new knowledge and solving problems based on identified issues, and (3) providing transformative leadership that meets societal needs and assisting socially disadvantaged citizens.

CARC and CEP will continue to be competitive in moving new transformational approaches, agriculture and ecosystem sciences, economic and social services, social and environmental drivers to address emerging and existing issues facing individuals, families, communities, and environmental systems in Texas. CEP and CARC will continue to gain insight from local stakeholders to develop signature programs for the next programming cycle. We sought to gather data and input from diverse venues. The information was contributed by clientele, stakeholders, committees, agents, specialists, scientists, program leaders, experts, and administrators. Each issue was treated on its merit, and the subsequent data analysis processes precipitated approximately 32 significant issues. At a formal retreat, the program leaders, experts, and administrators successfully further reduced the number of major issues to match the newly established National Institute of Food and Agriculture (NIFA) nine Science Emphasis Areas (SEA's). Subsequent prioritization produced 10 State defined Critical Issues with appropriate description meant to formulate projects/programs in the USDA REEPort system.

State Defined Critical Issues:

Given the targeted audience that encompasses various ethnic groups, religions, cultural, and socioeconomic backgrounds, the outreach methods used to address the identified needs are client-focused and culturally sensitive. The State Issues aligned with the nine Science Emphasis Areas to be addressed in this federal Plan of Work include the following:

Environmental Management: This critical issue focused 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. CEP Extension Agents work to educate ranchers and farmers, landowners, and producers on natural resource and environmental management.

Healthy Lifestyles: 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. These health issues are exacerbated by poor nutrition, smoking, and inactivity. The combination of increased calorie intake and sedentary lifestyles has serious implications for the health and well-being of youth and adults. A need exists to implement nutritional value programs in limited-resource communities to introduce highly nutritious specialty crops.

Disaster Management & Outreach: We strive to strengthen the CAHS capacity and commitment to understand and address disaster issues that impact underserved populations across all four program areas of CEP and to maintain close ties with USDA and related agency personnel while leveraging ongoing network relationships with local interest groups. We will utilize a comprehensive emergency management approach. Pertinent issues include refining strategies, addressing health disparities, training, and nurturing collaborative partnerships. Training will target disaster victims (individuals and families), agencies, universities, and political leaders. This will encourage a culture of pre-planning for

times of disaster and give victims' access to needed resources to maintain the quality of life and to be disaster resilient.

Fostering Strong Families: If the future of our society 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 the community, 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 primary 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 develop an understanding of how individuals and families obtain and use resources of time, money, and human capital to achieve their standard of living and overall quality of life.

Food Safety and Education: To ensure the safety of foods, an understanding of the complete food chain is essential. The research will be conducted on the development of nutritious value-added food products from goat milk, goat meat, and specialty 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 traditional plate counting methods and molecular methods using DNA and RNA. The Extension personnel will provide educational information about the importance of food safety and the relationship between basic sanitation practices when handling food, reducing waste, and conserving nutrients to prevent foodborne illness.

Food Security in Texas Communities: Food Security is an issue that affects persons nationally and internationally. In the United States estimated that 12% of the population is food insecure. Compared to the national average, Texas ranked among 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, to reduce food insecurity. 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.

Sustainable Livestock Management: In the large and small ruminant animal industry, livestock production, productivity, and management systems continue to grow in Texas. The culmination of these issues will focus on improving productivity with a variety of agricultural animals (i.e., cattle, goats, poultry, pigs, horses), improving livestock management, improving technologies and practices that increase livestock productivity, and conducting multiple levels of research investigating methods to increase the health and productivity of livestock through optimizing nutrition, and reproduction at the genetic level to studying all aspects of food animal production. Also, we must utilize technology to ensure that agricultural operations are profitable and environmentally friendly. CEP Extension Agents educate farmers and ranchers about research outcomes and develop sustainable farming/ranching operations with the economic viability and long-term viability through in-depth training in risk management, best practices, and agricultural business planning; and they assist 4-H youth development activities in fostering the next generation of agriculturists.

Crop Production and Utilization: We are conducting research to discover new knowledge about genetics, growth, and disease resistance of field, grain, fruit, and vegetable crops and to provide agronomic information on hybrids and variety. These issues include high-value, low volume specialty crop production, and major crops to improve the income situation and evaluate practices and systems concerning crop yield, profit, environmental, and ecological consequences for clientele. The research will focus on under-utilized fruits and vegetables, medicinal plants, legumes, and root crops, and actively investigate corn, soybean, wheat, forage, oats, and alfalfa. Variety trials, crop growth, development, fertilizer treatments, different rotation, and cultural practices will be investigated to determine best management practices for crop production and to conduct genetic improvements and biochemical evaluation of plant products. CEP Ag Extension Agents do demonstration projects and provide training and education on risk management, and agricultural business planning to improve economic returns and long-term viability with farmers.

Community, Resource, and Economic Development: We aim to increase entrepreneurship opportunities through small business training and consulting. Staff will work with individuals, communities, and organizations to inform and educate them on issues related to entrepreneurship, sustainable housing, disaster response, programs for limited resource individuals, asset and wealth building, saving and investing, credit building, debt management, and budgeting. We will increase community development and community services through non-profit capacity building. We also will develop and implement programs that address rural prosperity in the areas of 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.

Preparing Youth for Life and Work: These issues pertain to 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 will 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.

Individual and Joint Efforts (CARC & CEP)

Four State Issues will be addressed by the Cooperative Extension Program: 1) Healthy Lifestyles; 2) Fostering Strong Families Community; 3) Resource and Economic Development; and 4) Preparing Youth for Life and Work. The remaining six will be undertaken as a collaborative team of Cooperative Agricultural Research Center, and Cooperative Extension Program combined effort: 1) Environmental Management; 2) Disaster Management & Outreach; 3) Food Safety and Education; 4) Food Security in Texas Communities; 5) Sustainable Livestock Production; and 6) Crop Production and Utilization.

Overall, the goal is to ensure that our underserved communities and underrepresented families have greater access to the types of research, educational, and outreach services they need to assist them in solving everyday problems and issues.

2. FTE Estimates

Year	1890 Extension	1890 Research
2021	68.0	38.0
2022	70.0	40.0
2023	73.0	42.0
2024	75.0	45.0
2025	75.0	45.0

II. Merit / Peer Review Process

Extension programs initiated in the state of Texas have funded in whole or in part from Smith-Lever or Section 1444 and 14445 funds requiring a merit review process. The review panel is comprised of the Cooperative Extension Program, Executive Associate Director, Program Leaders, Specialists, Agents, Dean of the College of Agriculture and Human Sciences, Cooperative Agricultural Research Center director, and scientists. Particular focus to the plan is to determine if appropriate strategies are designated to reach the underserved and underrepresented clientele mandated by the United States Department of Agriculture. The plans are reviewed based on needs assessment, planned programs, outcomes, and evaluation. This combined leadership team is responsible for the oversight and management of all programs planned and implemented by Extension specialists and agents.

All proposed research projects that are funded under either Evans-Allen, Experiment Station (Hatch), or otherwise undergo a merit review process. Each proposal submitted for support is routed through an internal review committee for review and if deemed necessary, each proposal is routed through the University Committee on Research. The Research Director selects a set of individuals to serve as members of an internal review panel in consultation with the University's Vice President for Research. At a minimum, three individuals review and evaluate each proposed project prior to approval for external submittal and/or internal fund allocation. Scientific peer review is incorporated in that all project reports including the Current Research Information System must show evidence of external review. Written comments should be included with final proposals for campus routing. Routing proposals through quality control checkpoints (Research Director, Dean of the College and Vice President for Research) is designed to ensure that proposals meet RFP guidelines as well as meet scientific merit qualifications. All proposals are quality checked by our on-campus Office of Sponsored Programs.

III. Stakeholder Input

1. Actions to Seek

Multiple sources of input from stakeholders include local clientele, town hall meetings, advisory committee recommendations, and special interest groups. We contacted traditional as well as non-traditional stakeholder groups and individuals. Issues also were identified through the Texas Community Futures Forum (TCFF) database and prioritized through joint retreats with Extension and Research. We use well-established media outlets, and popular social media applications to announce programs and activities. Extension staff developed annual plans during the fall program planning conference with programs focused on issues identified and validated by local stakeholders. We share the results of our programs with our stakeholders and use the results of our Volunteer Satisfaction Survey to encourage a high level of participation.

2. Methods to Identify

Well established community relationships allow for various groups to be identified to collect input, such as Advisory Committees, Needs assessment, Leadership Advisory Board, and various interest groups. 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 process. We advertise on the university's website, other websites, and social media applications to highlight our work and seek volunteers.

3. Methods to Collect

Data will be collected during educational outreach programs, town hall meetings, online surveys, smartphone applications, Texas Community Future Forum (TCFF) online need assessment tool, College-wide need assessment, and issue prioritization retreats. Also, data are collected through paper surveys, surveys to email distribution lists, and target smartphones for surveys via texts, and QR codes.

Online tools used to collect stakeholder inputs include:

Email

Qualtrics

Google Forms

TCFF system

QR-Code

Microsoft Teams

In order to address the national priority areas, counties performed needs assessments through their advisory committees. They collaborated with CEP, CARC and other departments working in partnership with staff in Family & Consumer Sciences,

Agriculture & Natural Resources, Community & Economic Development, and 4-H & Youth Development to address and solve specific problems within the State of Texas. The CEP initiated the Stakeholders' Opinion Survey as the initial step of issue identification. County Extension Agents distributed and collected stakeholder's input regarding the critical issues in each county. Using NVivo (qualitative statistical analytical software), we analyzed the thousands of issues, extracted themes, and synthesized macro-issues into manageable working groups. The conclusion was two dozen data-driven, critical issues for our experts to perform the final validation.

The process to solidify our designated number of critical issues began with our Stakeholders' opinions, Agents and Specialists contributions, systematic statistical analytical methodology, and our Administrators, faculty, and Scientists editing and amending the final product. We organized a two-day retreat to assemble the Dean of the College of Agriculture and Human Services, Cooperative Extension Program director, program leaders, and specialists, and Cooperative Agricultural Research Center director, scientists, and faculty. These experienced and highly qualified personnel collaborated to consider all the issues identified, present their ideas, execute the critical issue prioritization process, formulate the programs, and produce the information for reporting.

As with any instrumentation, we addressed the validity (face validity, construct validity, and content validity). Criterion validity will be observed during the implementation stage of our programs. We completed several iterations of listing

Issues, combining issues, using deductive reasoning to reduce sub-themes, prioritizing the list again, until we reduced the list of issues from more than 100 to 32.

We implemented the following stages to arrive at the desired number of critical issues:

- Design stakeholder Need and Assessment Tool
- Collect data from stakeholders
- Display comprehensive issue list (Using NVivo qualitative software application)
- Categorize issues under NIFA SEA's
- Take prioritization poll
- Generate prioritized issue list
- List top 5-7 critical issues
- Develop project/program matrix
- Allocate FTE
- Complete the project/program matrix

At the end of our issue prioritization retreat with members of CARC and CEP to formulate the critical issues, we produced a list to be used during Program Planning.

4. How Considered

Extension agents and specialists meet with diverse groups to analyze issues and the most effective methodology to plan programs to address the issues. Program priorities lead to in-depth planning sessions to develop outcome-based activities. Extension program leaders and planners consider all input from multiple sources including our wide-ranging and well-informed stakeholders. As time and county demographics change, so do the needs, resources, health, etc. of our clientele. Our in-depth programs also must change in the short term; and, we must incorporate data and ideas for long-term planning and data-driven decision making.

During our step-by-step planning, we are cognizant of the chronic illnesses (diabetes, high blood pressure, etc.), healthy lifestyles, childhood obesity, housing, business, and farming needs of our limited resource clientele. Our attention to detail allows us to move beyond critical issue identification to program designing. These programs now become the units of analyses for consideration by CARC researchers to format research and CEP agents to design relevant educational programs.

We provide education, information, direct/indirect assistance, face-to-face advisement, and professional referrals to the clientele in both the urban and rural counties. For immediate disaster response, like hurricane or major fire, we rely on local input for logistical support and coordination. Collected input allows us to find emergency centers that provide shelter, and temporary locations to get food, water, and clothing. We use it to inform our clientele of available medical facilities, and places to register and itemize their personal needs. Post-disaster, this valuable information makes it easier for us to plan our programs based on location, and specific needs of the underrepresented clientele.

IV. Critical Issues

1 Environmental Management

Description:

This critical issue focused 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.

Term: Long

Science Emphasis Areas

Agroclimate Science
Environmental Systems

2 Healthy Lifestyles

Description:

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.

Term: Long

Science Emphasis Areas

Family & Consumer Sciences

3 Disaster Management & Outreach

Description:

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 the quality of life and be disaster resilient.

Term: Long

Science Emphasis Areas

Family & Consumer Sciences

4 Fostering Strong Families

Description:

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.

Term: Long

Science Emphasis Areas

Family & Consumer Sciences

5 Food Safety and Education

Description:

To ensure the safety of foods, an understanding of the complete food chain is essential. The research will develop nutritious value-added food products from goat milk, goat meat, and specialty 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 traditional plate counting methods and molecular methods using DNA and RNA. Extension will provide educational information about the importance of food safety and the relationship between basic sanitation practices when handling food, reducing waste, and conserving nutrients to prevent foodborne illness.

Term: Long

Science Emphasis Areas

Food Safety

6 Sustainable Livestock Management

Description:

In the large and small ruminant animal industry, livestock production, productivity, and management system continue to grow in Texas. This issue will focus on improving productivity with a variety of agricultural animals (i.e., cattle, goats, poultry, horses), improving livestock management, technologies, and practices. This issue will also conduct multiple research investigations on health, productivity, nutrition, reproduction, genetic, and studying all aspects of livestock productivity. Additionally, technology will be utilized to determine profitably and educate farmers and ranchers about developing sustainable farming/ranching operations with the economic and long-term viability through in-depth risk management training and best practices.

Term: Long

Science Emphasis Areas

Sustainable Agricultural Production Systems

7 Crop Production and Utilization

Description:

We can 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 will focus on under-utilized fruit and vegetable, medicinal plants including industrial hemp, legumes, and root crops, and actively investigate agronomic crops (i.e., corn, wheat, forage, and oats). Variety trials, crop growth, development, fertilizer treatments, and cultural practices to investigate best management practices for crop production and conduct genetic improvements and biochemical evaluation of plant products.

Term: Long

Science Emphasis Areas

Sustainable Agricultural Production Systems

8 Community and Economic Development

Description:

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.

Term: Long

Science Emphasis Areas

Family & Consumer Sciences

9 Preparing Youth for Life and Work

Description:

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.

Term: Long

Science Emphasis Areas

Youth Development

10 Food Security in Texas Communities

Description:

Food security is an issue that affects persons globally. In the United States, it has been estimated that 12 percent of the population is food insecure. Texas ranked among 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, to reduce insecurity. 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.

Term: Long

Science Emphasis Areas

Human Nutrition

Sustainable Agricultural Production Systems