Kentucky (Kentucky State University, University of Kentucky Combined)

Plan of Work for 2023-2027

Status: Final (Approved 9/6/2022)

Executive Summary Overview

The University of Kentucky College of Agriculture, Food and Environment and Kentucky State University College of Agriculture, Community, and the Sciences were founded as land-grant institutions (1862 and 1890, respectively), offering access to knowledge and learning to enhance the lives of Kentuckians. The two programs are fundamentally interdisciplinary, applying the biological, physical, and social sciences to challenges in agricultural, food, and environmental systems. Our work encompasses farms and forests, food and fiber, families, and communities. The University of Kentucky College of Agriculture, Food and Environment holds a unique position as the home of the Kentucky Agricultural Experiment Station and the Kentucky Cooperative Extension Service. Kentucky State University Land Grant Program and College of Agriculture, Community, and the Sciences (ACS) focuses on teaching, research, and Extension to address the needs of the small-scale and limited resource farmers; minority and underserved/disparity communities, as well as diverse and at-risk youths. The KSU Cooperative Extension Program offers new programs specifically to address food security, within low income and minority areas in West Louisville by developing community-based partnerships while providing non-formal education and demonstrations. The teaching, research, and Extension programs of these institutions are part of a national system that maintains a statewide presence and links local, state, national and global issues. With most of the nearly 80,000 farms in the state classified and small to mid-sized, many of these farms seek new opportunities for higher value crops and diversification. Others are operated on a part time basis or involve limited resources. The research and extension programs at both land-grant institutions provide the breadth needed to address the state's diversity of agricultural operations and agroecosystems. Nearly all animal production systems, including poultry, swine, small ruminants, and aquaculture, are faced with increasing public pressure to ensure high levels of animal welfare and operate in environmentally sustainable ways. Research and extension programs for row crops address management of nutrients, pests and diseases, variety selection in a changing climate and water management. Additionally, forage systems underpin the state's signature equine and beef industries; their management continues to be a focus for research and Extension programs in the state. Historically, many rural communities have had major dependence on farm incomes for their economic viability. With the declining potential of tobacco to generate farm income, development and discovery of new enterprises and management strategies are essential. Programs in support of high-value horticultural crops, aquaculture, industrial hemp, distillation, wine making, brewing and niche-market animal products are critical to providing viable alternatives. Successful risk management is important in maintaining competitiveness in the state's agricultural economy. The current public interest in community- and region-based local food systems provides Kentucky's research and Extension programs an ideal opportunity to showcase relevance to all citizens across the state and address issues of food

security, nutrition, prosperity, and sustainability in both rural and urban communities. The mission of an effective food safety system is to protect and improve public health by ensuring that foods meet science-based safety standards. Changes in the risk of food-borne disease are due primarily to changes in diet, increased use of commercial food service and food prepared and eaten away from home, new methods of producing and distributing food, and the growing number of at-risk individuals, such as the elderly and those with elevated risks to their immune systems. Educational training on the safe production, preparation, handling, and storage of food for producers, processors, consumers, and at-risk groups is the traditional approach to decrease the risks of food-borne illness. Additional work is needed on research, discovery, and education in the areas of production and processing practices. These programs will focus on established businesses as well as the growing home and micro-processing food industry. Three leading causes of morbidity and mortality in Kentucky are cardiovascular disease, cancer, and diabetes. In Kentucky, the prevalence of overweight adults has escalated over the last decades. Early diagnosis of cancer, diabetes, and cardiovascular disease is associated with improved outcomes, including improved quality of life and longevity. Prevention, detection, and treatment of chronic disease in Kentucky is particularly important in today's changing healthcare environment. People with chronic diseases require skills for self-care. Without such skills, people with diabetes or heart disease often require costly acute care. Nutrition programs like the National Cancer Institute's 5-A Day and USDA's MyPlate can have a profound effect on Kentucky citizens and communities. Recent studies show that fewer than one in five Kentucky adults eats an adequate number of servings of fruits and vegetables. In rural areas of Kentucky, including Appalachian and western regions as well as in urban areas, consumers may not have ready access to a variety of fresh fruits and vegetables at reasonable prices. Over 50% of Kentuckians with incomes just below poverty level are overweight, and children and youth are especially at risk. The need to improve health and quality of life for citizens of the Commonwealth is evident. Like most states across the nation, Kentucky is also battling addiction, primarily the opioid epidemic. This is not only affecting the health and well-being of residents, but it is also causing major economic effects. When individuals are addicted to drugs, they are unable to find meaningful employment and support their families. In turn, this could cause businesses to reconsider locating operations in Kentucky communities due to the lack of a qualified and sober workforce. Kentucky Cooperative Extension System is working to combat these issues through university and community partnerships. Kentucky's natural biological wealth and beauty has drawn the attention of people for centuries. With Kentucky's biological wealth being threatened, protecting soil, air and water resources through better land management and production technologies is a prime goal of programs that serve the spectrum of Kentucky’s agricultural enterprises, rural landscapes and communities. Our research and Extension programs have been instrumental in the implementation of no-till crop production and that legacy will continue through new innovations in soil and water management. Emerging interest in controlled environment agriculture and agrivoltaics require consideration in sustainable agricultural systems. Kentucky's biological wealth may continue to be threatened unless comprehensive and sustainable approaches are researched and utilized for enjoying, studying, and, at the same time, harvesting the fruits of the land through logging, mining, and agricultural production. Ecosystem services must be preserved, anti-microbial resistance must be mitigated and pollinator populations must be protected. Approaches must also consider how these systems adapt to and mitigate climate change. Programs must strive to elucidate how climate change will impact agricultural and natural resource systems while developing programs and technologies that will help farmers, foresters, and others adapt. The land grant system's mission of enhancing economic opportunity and

improving the quality of life for Americans goes well beyond agricultural production. It includes the empowerment of people and communities through research-based information and education to address economic and social challenges facing our youth, families, and communities. Some of the challenges are: Families face increasing financial difficulties. Many Kentucky families are in debt and are not saving enough to secure their financial future; many are on the edge of financial disaster. Families need assistance in learning to live within their income and earning capacity and in planning for the future. Both urban and rural areas of the state continue to be plagued by high unemployment and underemployment. Nearly 30% of Kentucky's youth fail to graduate from high school. Many Kentuckians lack the educational preparation and skills needed to secure and maintain employment or qualify for new-era jobs. Throughout their lives, both youth and adult Kentuckians need to develop skills essential to become productive members of the community and workforce. Being a productive member of society as an adult requires young people to gain experience as active citizens at an early age. 4-H community service activities provide learning experiences that help youth develop life skills needed to be effective in various adult roles in society. Our goal is to improve the capacity of communities to identify and address these critical issues, and others that affect the lives of citizens. We can best do this by fostering the development of personal and interpersonal skills, stimulating volunteer leadership, and promoting active participation in community problem-solving. Without the acquisition of life skills needed by young people and adults, it is doubtful the citizens of Kentucky will reach their full potential as both individuals and as members of families. Once identified as priorities, specific problems and needs are addressed by our researchers and Extension specialists. Whether it is preserving our rich agricultural tradition by helping farmers, food processors, and agribusiness cope with technical issues, reaching goals, or enhancing the life skills of families, our research, education, and Extension programs are helping shape the future of Kentucky's agriculture, food systems, and communities as well as the quality of life of its citizens.

Merit and Scientific Peer Review Processes

The Kentucky Cooperative Extension Service has defined merit review as a process used to judge the degree to which a planned program (1) is relevant to needs expressed by stakeholder groups, (2) draws upon current research and knowledge, (3) is congruent with quality standards and best practice, and (4) is likely to produce anticipated outcomes. Merit review for research is similar in that it uses the criteria of (1) consideration for potential impact, (2) relevance to the needs of stakeholders, and (3) appropriateness within the mission and priorities of the experiment station, USDA, and the land-grant mission. The Plan of Work is built on program goals that the Cooperative Extension Service identified through extension advisory committees, developed through logic model program development, and reviewed through regional issues committees made up of extension agents, department chairs and specialists. The program area assistant directors then select major programs based on identified need in the greatest number of counties, current and planned research and educational resources, and our ability to effectively deal with the issues. Forty-four non-university individuals representing all geographic regions of Kentucky as well as agriculture, youth, families business, industry, and public education serve as reviewers of the Plan of Work. The plan is reviewed by members of the state extension council using the criteria identified above. Reviewers represent stakeholder groups, organizations and related businesses and have affiliation within the disciplines germane to the portion of the plan they are asked to review. New members were added to better represent KSU programs. Kentucky State University has five delegates on the State Extension Council and they participate in the

Program Councils, as well. Kentucky State University (KSU) - College of Agriculture, Community, and the Sciences supports program areas according to the needs of our clientele - the small and limited-resource farmers, minority and underserved communities, and diverse and at-risk youths. The University of Kentucky Agricultural Experiment Station focuses scientific peer review and merit review on individual research projects. Scientific review is evaluation by other researchers who possess the expertise to conduct the same or similar research. Such review includes technical feasibility, originality and scientific/disciplinary significance of the research. Project proposals go through a peer review process. Departments establish a review committee to critically evaluate the proposal and recommend approval, rejection, or revision. Only projects approved at the department level move forward for external peer review at the college level. The college solicits further scientific peer review by highly qualified individuals who are external to the department (and often the university). At the Director's discretion a designated statistician and other outside expertise, including stakeholder review, is used as needed.

Stakeholder input: Action Taken to Seek Stakeholder Input

The Kentucky Cooperative Extension System development process is based on a grassroots, six-stage model that begins with the engagement of local advisory councils for agriculture, 4-H, Family and Consumer Sciences and Extension Homemakers. These program committees use a variety of methods for capturing input, including council dialogue and discussion, surveys, program evaluations, and other local agency and organization agendas. For the development of the new plan of work, these program committees supported the total county extension council in data collection that includes local resident perspectives, and an examination of existing data to determine local program direction. Through an analysis of this data and facilitated dialogue, councils identified program opportunities through which extension and local community organizations could effectively bring about positive change. County extension councils then established program priorities for which county program plans were written. In all, several thousand were involved in the process of establishing local program priorities for the current plan of work. Extension continues to employ a strategic planning process to guide all missions of the college, including Cooperative Extension and the Experiment Station. Substantial effort was made to gather input from both internal and external stakeholders. The Planning Team included a study group for industry, clientele and state associations, which works to identify stakeholders with whom to meet individually or as a group to gather feedback. In addition, meetings are held periodically at various locations throughout the state to gather input from citizens, including those not related to agriculture or a user of extension programs. Surveys are often used to gather input from those who cannot attend a face-to-face session. Data and feedback are collected, evaluated and used to create the goals and strategies that make up the plan. As full partners with Extension, the Experiment Station and Land-Grant Research program set priorities for research activities with information from the county Extension councils, strategic planning process and our respective Councils for Agricultural Research, Extension and Teaching (UK-CARET and KSU-CARET). The state CARETs function as advisory and advocacy groups for their respective land-grant programs. Additionally, units within the Agricultural Experiment Station convene external advisory committees that aid them in setting priorities, evaluating programs and making management decision that impact our clientele. Programs at both universities also work in close partnership with state commodity and producer organizations including the Ky. Soybean Promotion Board, Ky. Corn Growers and Small Grains Association, Ky. State Goat Producers. Ky. Aquaculture Association, and the Ky. State Horticultural Society, to name but a few. By meeting with and serving as members of such organizations, leadership at both institutions can ensure that our programs are

meeting the needs of each key agricultural industry and making the connections needed to leverage our capacity funding.

Stakeholder input: Methods to Identify Individuals and Groups

External advisory groups and committees provide for regular rotation of membership. This results in a regular analysis of the makeup of the advisory group and makes it clear when geographic regions and underserved audiences have issues that need to be addressed. Potential new members are identified in a variety of ways, including consultation with relevant commodity and industry organizations, the state department of agriculture, alumni associations and inquiries from the public. Stakeholders were identified by strategic planning team members and college administrators. Regional sessions were publicized by Extension offices and one Extension-led community forums. Each year, counties are asked to identify 3-5 stakeholders representative of the diversity within their communities, including one or two who were not typical participants in extension programs. Contacts for each major program area (4-H youth development, Family & Consumer Sciences, agricultural and natural resources) were asked to distribute the input survey to their membership.

Stakeholder input: Methods for Collecting Stakeholder Input

Every state level four-year plan of work cycle requires an in-depth needs assessment with agents working with and through advisory councils and committees to identify individuals, organizations, and resources impacted by Extension and seeking input from those groups. Agents likewise draw input from their involvement on the planning and advisory groups of government, inter-agency councils, schools, development districts and other organizations. Plans are reviewed and updated on an annual basis by the extension advisory groups. Research groups and leaders seek input from stakeholders and report on stakeholder issues, concerns, and suggestions. The CAFE strategic planning team gathered input in a variety of ways, including face-to-face interviews with individuals or small groups, large group meetings that included brainstorming exercises, community assessment forums and surveys. In addition, open comments could be submitted to the team at any time through a publicly available web form. Units with advisory committees or boards meet at regularly scheduled intervals to provide regular updates of activities and seek input on strategic planning, program development and resource investments.

Stakeholder input: A Statement of How the Input Will Be Considered

Stakeholder input is utilized across the board from research needs, hiring, to budget development, resource acquisition, program implementation, facility planning, and evaluation. Our stakeholders are one of our most valuable resources in helping to communicate the successes of the organization with outside and nontraditional groups and decision makers. Kentucky's land-grant programs have a strong track record of responding to the needs of our stakeholders through large, collaborative, and integrated initiatives. Recent examples include planning for the rebuilding of the Research and Education Center at Princeton and a new food processing facility. High priority issues and needs identified by county extension councils are acted upon locally by county Extension staff and leaders and are summarized and prioritized for consideration at the district level through an Issues Prioritization Process. The issues are then directed to the Program Leaders and academic departments for response. Lay leaders of the State Extension Advisory Council again review the list of issue and responses. This process has been followed to assist university personnel and extension specialists in better understanding the county-level issues,

to speed up the development of resources, and to better focus educational methods for dealing with these locally-identified issues. Programs of greatest need in the greatest number of counties are focused on to identify existing resources and develop new materials to address issues and concerns.

Critical Issues

Agricultural, Environment and Natural Resources

Initiated on: Nov 26, 2019
State: Kentucky

Term Length: Intermediate (1-5 years)

Agriculture and natural resources are critical to Kentucky's economy. Research-based practices and tools delivered through Extension will ensure continued productivity of our producers while encouraging the implementation of sound environmental practices and effective stewardship of natural resources. Our programs must address water quality, soil health and conservation in row-crop production, integrated pest management and pollinator health, aquaculture, horticulture, organic production, master gardeners, and sustainable animal production and management systems. Programs will also continue focusing on sustainable energy and agroecosystem adaptation to climate change.

Science Emphasis Area

Agroclimate Science, Bioeconomy, Bioenergy, and Bioproducts, Environmental Systems, Sustainable Agricultural Production Systems

Economic and Financial Well-Being

Initiated on: Nov 26, 2019
State: Kentucky

Term Length: Intermediate (1-5 years)

Extension programs and research will be conducted to improve the capacity of communities to enhance economic opportunities and quality of life of residents. Programs include a focus on family financial management and estate planning to perpetuate wise consumer decision-making. Engaging citizens to identify local assets, community needs assessment, tourism, entrepreneurship, and e-commerce will be emphasized. Research efforts will investigate how various factors impact the profitability of agriculture and natural resource enterprises as well as economic development within communities. Kentucky Cooperative Extension System will continue to support small and minority businesses. Both land-grant institutions also partner with state government in creating ecosystems that support agritech business development for sectors such as controlled environment agriculture, distillation, and bioproducts.

Science Emphasis Area

Family & Consumer Sciences

Food Safety and Security

Initiated on: Nov 26, 2019
State: Kentucky

Term Length: Intermediate (1-5 years)

Extension and research strives to reduce the extent of food-borne illnesses due to contamination of food. Programs are designed to tackle the problem at the levels of production, processing, and consumption. Research includes the reduction of risks from natural and manufactured toxins in food. A significant amount of effort is placed on the importance of securing nutritious local foods through assistance programs. Kentucky Cooperative Extension System will continue being a relevant resource in training producers and consumers on ways to grow and access local farm-to-table food products. Demonstrations of safe food handling and processing practices will be conducted in addition to addressing food deserts.

Science Emphasis Area

Bioeconomy, Bioenergy, and Bioproducts, Family & Consumer Sciences, Food Safety, Human Nutrition, Sustainable Agricultural Production Systems

Leadership and Community Engagement

Initiated on: Nov 26, 2019
State: Kentucky

Term Length: Intermediate (1-5 years)

The efforts of this critical issue aims to foster the development of leadership skills, stimulate volunteerism, and promote participation in addressing community issues. Providing adults and youth with leadership and development opportunities is important to their personal development and the improvement of the community in which they live. Kentucky Cooperative Extension System (KCES) will offer leadership training programs on topics that may serve community organizations and local leaders as well as land-grant personnel. In addition, KCES is providing leadership training in ecological issues to promote resilient and thriving communities in a rapidly changing society.

Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Youth Development

Life Skill Development

Initiated on: Nov 26, 2019
State: Kentucky

Term Length: Intermediate (1-5 years)

This critical issue promotes the acquisition of life skills needed by youth and adults to reach their full potential. Issues abound in regards to early childhood development, youth development, family well-being, ethics, character education, life skills, money and resource management, retirement savings, social entrepreneurship, communication and information delivery, and more. Kentucky Cooperative Extension System (KCES) will expand educational outreach in STEM/STEAM areas that will increase enrollment of limited-resource families and communities who are at or below the poverty level and who qualify for support services

Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Youth Development

Nutrition and Healthy Lifestyles

Initiated on: Nov 26, 2019
State: Kentucky

Term Length: Long-term (>5 years)

Nutrition and Healthy Lifestyles is a critical issue due to research and Extension's continued drive to encourage the adoption of healthy lifestyles through a focus on proper diet and nutrition, physical activity, disease prevention, pest control (in regard to food and human disease vectors), and injury reduction. The goal is to ensure a safe, nutritious, and high quality supply of food for all Americans. In addition, there is a common goal for both land-grant institutions to promote health and safety within Kentucky homes and community environments. Moreover, programs to combat social ills, such as childhood obesity and the opioid epidemic, are of high priority.

Science Emphasis Area

Family & Consumer Sciences, Human Nutrition, Youth Development

Small Farm Development

Initiated on: Nov 26, 2019
State: Kentucky

Term Length: Long-term (>5 years)

Small-scale producers are searching for alternative enterprises and crops to sustain family farms. Kentucky Cooperative Extension System (KCES) will aid this endeavor through improved production, marketing farm management practices, and niche products (e.g., aquaculture, pawpaws, beekeeping, etc.). KCES will continue to develop and implement educational programs, demonstrations, and experiences that increase the knowledge and skills of small-scale and limited-resource farmers in marketing, farm management, sustainable animal and plant agriculture, and local food systems to ensure the profitability and resilience of their farms and communities.

Science Emphasis Area

Environmental Systems, Sustainable Agricultural Production Systems