California (Regents of the University of California)

Plan of Work for 2023-2027

Status: Final (Approved 10/2/2022)

Executive Summary Overview

UC Agriculture and Natural Resources (UC ANR) is the land-grant arm for the University of California. The Agricultural Experiment Station (AES) on three UC campuses is integrated with UC Cooperative Extension (UCCE) across the state. UC ANR has programs in every county in California, nine Research and Extension Centers (RECs), two UC systemwide Institutes and eleven Statewide Programs. UC ANR is excited to be expanding the UCCE academic footprint by over 100 new recruitments. The locations of UCCE Specialists is also expanding from the existing locations at UC Berkeley, UC Davis, UC Riverside, UC Santa Barbara, UC Santa Cruz and UC Merced, RECs and in county offices to add the UC Irvine and UC Los Angeles campuses.

The UC ANR network engages academics across the entire UC system to encourage integrated teams to work on complex issues that require multidisciplinary approaches to find solutions. The UC ANR connections also include faculty from the State University system, private colleges and universities, and stakeholders representing federal and state governmental agencies, organizations representing agricultural and natural resource production, non-governmental organizations (NGO's), and other interest areas including the environment, youth, and nutrition.

UC ANR has the vision of making a positive difference in the lives of every Californian. UC ANR envisions a thriving California where healthy people and communities, healthy food systems, and healthy environments are strengthened by a close partnership between the University of California and its research and extension programs and the people of the state. The University remains connected and committed to the people of California, who enjoy a high quality of life, a healthy environment, and economic success in a global economy.

UC ANR's mission is to maintain and enhance connections that fully engage UC with the people of California and to achieve innovation in fundamental and applied research and education that supports sustainable, safe, nutritious food production and delivery; economic success in a global economy; a sustainable, healthy, productive environment; and science literacy and youth development programs.

California's Future Challenges with UC ANR's Response

The challenges facing California are numerous and require multiple strategies to ensure UC's vision for California becomes reality. UC and its partners will strategically focus UC ANR's efforts on the following challenges.

Increasing global and domestic populations require increased, safe and sustainable, food production - The UC ANR network offers the opportunity to respond to local needs for increased food products and value, as well as the opportunity to test varieties which will respond to global food and marketing needs. The REC system offers opportunities for testing and evaluation of plant and animal varieties as well as systems of production. Opportunities abound for field-testing of biotechnology developed in campus labs, and for the evaluation of methods to reduce the impact of invasive species through the continuum of county and campus-based academics. Industry needs and requirements can be discussed, applied and tested in soil, water, and weather conditions throughout the state.

Increased population leads to intensified competition for water resources among urban, environmental and agricultural uses - The UC ANR network works with a broad spectrum of stakeholders to identify local and regional water policy issues and can be the catalyst for initiating research and educational programs that develop solutions. Many of UC ANR's RECs have the infrastructure to enable research in water use efficiency, deficit irrigation, and management strategies to reduce water needs. They also have the capacity to support alternative crops research that may identify new varieties or crops that require less water.

California faces diminishing and more costly energy supplies - UC ANR's research and extension network can provide California agriculture with new production technologies and practices which minimize energy consumption and utilize renewable energy sources. UC ANR’s innovations with partners can provide technology, marketing and policy advancements to enable expanded use of forest, range, and agricultural resources for renewable energy production.

Environmental constraints will continue to increase in California- UC ANR’s research and extension programs offer the potential for multiple stakeholders to compare the impacts of regulatory programs and recommend new and creative methods for protecting the environment, while simultaneously producing goods and services. Links between campus and county programs allow for collaboration in both research and outreach programs.

The mixture of regional crops and animal products grown in California will change - UC ANR is uniquely positioned to address the shifts in crop production that will have to occur and has the capacity to investigate the suitability of areas for growing crops not previously produced in similar climates and to alter or develop production systems to create sustainable systems in these new environments. Both short and long-term research can be conducted under controlled situations not available when utilizing cooperators' operations.

The capacity to use nutrition to positively impact human health will be a reality - UC ANR discoveries and educational outreach will help understand, evolve solutions, and inform the public about diseases, such as obesity, diabetes, heart disease, stroke, hypertension, cancer, and bone diseases, that are human health threats related to poor nutrition and lifestyle choices. Current and future technologies based on

genetics, genomics, proteonomics and other methods will contribute to the creation of designer foods to enhance nutrition and reduce health risk.

California's youth will need more complementary education programs - UC ANR's system of research-based non-formal education can be used to develop new approaches to science literacy and school readiness especially among low income and under-represented populations. The 4-H Youth Development Statewide Program provides alternative academic pathways and promotes leadership development and citizenship opportunities that keep youth engaged in their educational pursuits and development. With other internal UC and external partners, UC ANR programs will complement the K-12 school system and reinforce development of skill sets to prepare youth for higher education, future career opportunities and informed participation in civic affairs and public policy.

UC ANR Strategic Initiatives/Critical Issues

To meet the state's most pressing challenges, members of the UC ANR network position cutting-edge science and education programs that focus on the five UC ANR Strategic Initiatives: 1) Sustainable Food Systems ; 2) Sustainable Natural Ecosystems; 3) Healthy Families and Communities; 4) Endemic and Invasive Pests and Diseases; and 5) Water Quality, Quantity, and Security. These are the best opportunities for UC ANR's considerable infrastructure and talent to find solutions to these critical issues facing California.

UC ANR Strategic Plan and Public Values

UC ANR's refreshed Strategic Plan 2020-2025 builds on the previous strategic plan's work to operationalize the UC ANR Strategic Vision 2025. The strategic plan defines goals to enhance UC ANR's research and extension mission, support employees and volunteers, address financial stability and administrative excellence, and increase awareness of UC ANR's value. In addition, UC ANR will continue its efforts to contribute to its seven broad public values and the respective more discrete condition changes listed below. UCCE academics allocate their time toward these significant social/health, environmental, and economic benefits. In the annual report the UC ANR outcomes and impacts are aligned with Critical Issues/Strategic Initiatives and framed in terms public value and the condition changes below.

1) UC ANR: Promoting economic prosperity in California: Improved individual and household financial stability; Enhanced community economic development; Improved animal management, productivity and efficiency; Increased agriculture and forestry efficiency and profitability; Increased emerging food economies and markets

2) UC ANR: Safeguarding sufficient, safe, and healthy food for all Californians: Improved food security; Improved food safety

3) UC ANR: Protecting California's natural resources: Improved management and use of land; Improved air quality; Protected and conserved soil quality; Increased ecological sustainability of agriculture, landscapes, and forestry; Improved water quality; Improved water-use efficiency; Improved water-supply security

4) UC ANR: Promoting healthy people and communities: Improved health for all; Improved community health and wellness; Improved access to positive built and natural environments

5) UC ANR: Developing a qualified workforce for California: Increased workforce retention and competency; Increased effective public leaders; Improved college readiness and access; Increased civic engagement

6) UC ANR: Building climate-resilient communities and ecosystems: Increased preparedness and resilience to extreme weather and climate change

7) UC ANR: Developing an inclusive and equitable society: Improved living and working conditions for California's food system and farm workers; Increased diversity, inclusiveness, and cultural competency in California's workplaces

Merit and Scientific Peer Review Processes

Each Agricultural Experiment Station project in the federal reporting system (REEport or NRS) undergoes scientific and merit review at its respective colleges/school on the UC Berkeley, UC Davis, and UC Riverside campuses. Depending on the process for the specific colleges/school, either a peer review committee or the Associate Dean evaluates the relevance, feasibility, quality, and scientific value of the proposed research. Upon completion of the review, the Deans' offices forward the projects to UC ANR Program Planning and Evaluation for submission to NIFA. For the submittal of a project initiation, Program Planning and Evaluation ensures it is signed by the Associate Dean which verifies the scientific and merit review conducted at each location.

UC ANR's organizational structure emphasizes that resource allocation decisions will be driven by programmatic considerations and developed through a broad participatory process. This process includes review of ability to address critical needs, stakeholder engagement, and likelihood of making a significant impact, in order to realize the UC ANR strategic vision. At the statewide level, the UC ANR Program Council meets almost monthly to coordinate planning and program delivery, and to develop resource allocation recommendations for UC ANR's programmatic units. This programmatic leadership group is comprised of representation of diverse program areas and from AES and Cooperative Extension.

The Strategic Initiatives, Program Teams, and Workgroups are mechanisms that engage AES and Cooperative Extension academics to identify programmatic priorities and multidisciplinary solutions. The Strategic Initiatives are the umbrella structure to unify, communicate, and advocate. The strategic initiative leaders and their respective advisory panels bring a broad spectrum of expertise and practice to help identify the key critical and emerging issue areas and grand challenges to be addressed. The Program Teams provide the opportunity for academics across UC ANR to network, share, and learn. They provide input into the process that identifies priority Cooperative Extension academic positions to be hired, given their programmatic expertise and statewide perspective. The Program Team meetings provide the structure for the many Workgroups to meet and foster multidisciplinary approaches to solve the critical issues facing the state. In this way they carry out their essential leadership functions and enhance inter-Workgroup communication and collaboration. The Workgroups operate as Communities of Practice where people plan and implement research, outreach, and education efforts. The Workgroups involve external stakeholders in their program planning process, activities, and projects.

The involvement of external stakeholders in the Workgroups ensures that real world needs are brought to attention as programs are planned and implemented. External stakeholders on the Workgroups include individual producers, representatives from local community groups, state and federal agencies, industry groups, consumer groups, and colleagues from other higher education institutions.

Stakeholder input: Action Taken to Seek Stakeholder Input

UC Cooperative Extension (UCCE) Advisors delivering programs in 58 counties receive input on local needs from clientele daily and conduct regular needs assessments.

UC ANR actively engages stakeholders in the process to determine the highest priority UCCE academic positions. The process includes consultation with internal stakeholders and strongly encourages engaging external stakeholders in the development of the position proposals. The UC ANR Program Council provides recommendations the Vice President, who makes the final decision.

UC ANR's Research and Extension Center (REC) system will continue implementing the new 2020-2025 strategic framework developed with input from a diverse group of users and thought leaders. In particular, the Goal 1: Creating Research and Extension Hubs engages stakeholders across the UC system and beyond to identify and collaborate on high-priority research areas, the foci for the specialized hubs. Each of the nine centers also will continue to implement its individual strategic plan developed with critical stakeholder guidance.

UC ANR's statewide programs/institutes each undergo program planning and review that solicits and incorporates significant stakeholder input. These processes have committees with representatives of diverse stakeholder interests from across UC and external groups. In the strategic planning processes committee members also engage additional stakeholders to provide input. In the program review process the ad hoc committees solicit input from additional stakeholders through various data collection methods, such as interviews, web-based surveys, focus groups, and Ripple Effect Mapping, to assess past performance and future direction. The statewide programs/institutes also have advisory groups which meet regularly to provide feedback and offer recommendations.

The President's Advisory Commission on Agriculture and Natural Resources advises the UC President on issues of importance to California, and assists UC in identifying needs in the agricultural, natural resources and related human resources sectors and ways to meet them through research, outreach, and education. The members represent over 40 different California business, consumer, youth and government leaders. The UC ANR Vice President brings the Commission's advice to the UC ANR Deans' Council, which includes the four Deans from UC's AES college/school locations.

The Deans' Council advises on UC ANR programmatic directions, resource allocation, and policies. The AES colleges/school have external stakeholder advisory councils that provide feedback on their research, extension, and teaching programs.

The UC ANR Governing Council promotes greater understanding of and participation in UC ANR's mission across the University. The council includes high-level internal and external stakeholders, including the Secretary of the California Department of Food and Agriculture. They meet regularly to provide recommendations to the UC ANR Vice President, UC President, and Executive Budget Committee on UC ANR's budget and funding models, and scope, policies, and procedures.

Members of commodity organizations/marketing order boards provide input on research and extension needs for their commodities to UC ANR members through regular meetings and discussions on funding for research projects.

UC ANR partners with community colleges, in particular to advance workforce development efforts.

Stakeholder input: Methods to Identify Individuals and Groups

UC ANR uses a variety of methods to identify groups and individuals from whom to collect input, such as the following: standing advisory committees; ad hoc program review committees; ad hoc strategic planning committees; needs assessments; and relationships with clientele and partners.

Stakeholder input: Methods for Collecting Stakeholder Input

UC ANR uses a variety of methods for collecting stakeholder input from groups and individuals both that are traditional and non-traditional for the organization, such as the following: meetings, focus groups, surveys, interviews, Ripple Effect Mapping, and events open to the general public.

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

UC ANR uses collected stakeholder input to inform program planning, in the following ways: to identify critical and emerging issues; to set priorities; in developing action plans; in resource allocation decision-making; to redirect extension programs; and to redirect research programs.

Critical Issues

Endemic and Invasive Pests and Diseases

Initiated on: Nov 26, 2019
State: California

Term Length: Long-term (>5 years)

The Endemic and Invasive Pests and Diseases federal Critical Issue is one of the UC ANR Strategic Initiatives. It focuses on the following bulleted program areas that address the grand challenges of emerging pests, the public's understanding of the role of science in safe and effective pest management, and pursuing new technologies for existing pests.

- Keeping invasive pests and pathogens out of California
- New problems with existing pests and diseases
- Integrated Management

The Endemic and Invasive Pests and Diseases Strategic Initiative helps the state economy, protects natural resources, builds capacity of our people and communities, and helps ensure safe food and drinking water.

Science Emphasis Area

Agroclimate Science, Education and Multicultural Alliances, Environmental Systems, Food Safety, Sustainable Agricultural Production Systems

Healthy Families and Communities

Initiated on: Nov 26, 2019
State: California

Term Length: Long-term (>5 years)

The Healthy Families and Communities federal Critical Issue is one of the UC ANR Strategic Initiatives. It focuses on the following program areas and grand challenges.

- Food literacy and healthy lifestyles to address chronic disease and food insecurity across the lifespan of all Californians
- Scientific literacy (youth and adult) to foster access to science education and professional learning opportunities
- Positive Youth Development programming to deliver of high-quality positive youth development in all communities
- Community development and public policy to address rising social, economic and heath inequality.

The Healthy Families and Communities Strategic Initiative helps build the state economy and the capacity and health of the people and communities.

Science Emphasis Area

Education and Multicultural Alliances, Family & Consumer Sciences, Food Safety, Human Nutrition, Youth Development

Sustainable Food Systems

Initiated on: Oct 01, 2020
State: California

Term Length: Long-term (>5 years)

The Sustainable Food Systems federal Critical Issue is one of the UC ANR Strategic Initiatives. It focuses on the following program areas and respective grand challenges.

- Sustainable production – addressing labor scarcity; regulatory requirements; water quantity and quality; farm prices; climate change; and emerging pests
- Safe processing – addressing food safety and food preservation
- Enhanced access – addressing food deserts and cost; changing food preferences; food access and security for aging seniors

The Sustainable Food Systems Strategic Initiative helps the state economy, protects the natural resources, builds capacity of people and communities, and helps ensure safe food.

Science Emphasis Area

Agroclimate Science, Bioeconomy, Bioenergy, and Bioproducts, Education and Multicultural Alliances, Environmental Systems, Food Safety, Sustainable Agricultural Production Systems

Sustainable Natural Ecosystems

Initiated on: Nov 26, 2019
State: California

Term Length: Long-term (>5 years)

The Sustainable Natural Ecosystems federal Critical Issue is one of the UC ANR Strategic Initiatives. It focuses on the following program areas to address the grand challenges of fire, land use policy, water supply, climate change, and biodiversity.

- Healthy rangelands, forests, and working landscapes
- Fighting fire - resilient forests and fire-safe urban areas
- Healthy landscapes and urban forests
- Enhancing and protecting water supplies (quality and quantity)
- Land use policy
- Climate change

The Sustainable Natural Ecosystems Strategic Initiative helps the state economy, protects natural resources, and builds capacity of our people and communities.

Science Emphasis Area

Agroclimate Science, Education and Multicultural Alliances, Environmental Systems

Water Quantity, Quality and Security

Initiated on: Nov 26, 2019
State: California

Term Length: Long-term (>5 years)

The Water Quality, Quantity, and Security federal Critical Issue is one of the UC ANR Strategic Initiatives. It focuses on the following bulleted key critical issue areas. This critical issue works on: 1) conservation and enhancement strategies to bolster water resources and meet increasing agricultural, urban, and ecosystem water demands; 2) sustainable farm, urban, and natural resource management practices to protect soil and water quality from salinity, sediment, pathogens, excess nutrients, trace elements, and other contaminant; 3) quantifying the impacts of climate change on California's precious water resources and consequent impacts on agriculture, urban, and ecosystems, while seeking ways to make these sectors more resilient to climate related risks.

- Safe and secure drinking water
- Safe and secure surface water
- Safe and sustainable groundwater
- Holistic water management

The Water Strategic Initiative helps protect and enhance natural resources, prepare for extreme drought and flood conditions, ensure safe food and clean drinking water, and strengthen the states' workforce and economy.

Science Emphasis Area

Agroclimate Science, Education and Multicultural Alliances, Environmental Systems, Food Safety, Sustainable Agricultural Production Systems