

## **Proposed UCCE Specialist Position in Spatial Applications in Agriculture (at UCR School of Public Policy)**

**Position Title:** Cooperative Extension Specialist in Spatial Applications in Agriculture – to be housed in the School of Public Policy (SPP), University of California, Riverside

**Position:** Spatial tools for data collection and quantitative analysis have become key to understanding agricultural decision-making and the impact of policy, drought, and climate change on the agricultural sector. The growing availability of spatial data and GIS technology provides agricultural economists with large and detailed spatial databases that allow the development of new empirical methods to obtain insights into the interactions between agriculture and the human and natural resource base that it relies on. Designing policies to foster a long-run sustainable agricultural sector requires the type of understanding that spatial data and models foster.

We propose a CE Specialist whose policy-oriented research and outreach program will focus on applications of spatial analysis of critical issues impacting the California agricultural sector, including but not limited to producers and production. The Specialist will focus on key issues such as climate change and drought, soil properties, land use, water availability and quality, using agricultural/environmental spatial data, applied microeconomics, and geospatial modeling. The position requires a Ph.D. in agricultural economics, economics, or a closely-related field, with proven experience in spatial economics. The incumbent will be housed in the School of Public Policy (SPP) at UC Riverside. The Specialist will collaborate with colleagues working on food systems statewide, including other CE Specialists and Advisors (particularly those contributing to UC ANR's Sustainable Food Systems strategic initiative), AES faculty, and researchers in departments, centers, and institutes across many fields. This collaboration will include active participation in competitive research and outreach programs and identifying key current and future issues of importance to California's agricultural producers.

**Justification:** California growers and the agricultural sector face many challenges impacting land-use choices. These challenges include climate change in the form of increased annual temperatures, altered precipitation patterns, and harsher and prolonged droughts; the declining availability and increased cost of labor; and an increasingly stringent regulatory environment focused on labor issues (increasing minimum wage, H2A visas), water (SGMA), and applied inputs (fertilizer and pesticides). Improved understanding of how the impact of climate change and regulatory policy affects agriculture will help political leaders design more cost-effective policies that better address not only agricultural goals but also social and environmental goals and will allow agriculture to better adapt to a changing climate. Such understanding requires innovative spatial data collection, data synthesis, and analysis. The position is intended to address these complex issues by combining spatial and economic sciences. This position aligns closely with ANR's Sustainable Production theme (Labor scarcity; Dealing with regulatory requirements; Water quantity and quality; Farm Prices; Climate change; Emerging pests) under the Sustainable Food Systems strategic initiative. It also supports at least two of ANR's public values: promoting economic prosperity in California and safeguarding abundant and healthy foods for all Californians. The Specialist will meet the needs of stakeholders by regular communication with commodity boards, State agencies, farm advisors, and growers.

**Extension:** This Specialist will provide leadership and integration among campus faculty, statewide CE Advisors and Specialists, and between UC campuses, policymakers, and commodity groups. This will occur within existing organizational structures (e.g., county-based UCCE advisor meetings, ANR Program Teams' meetings and Workgroups, commodity research advisory boards,

California Farm Bureau Federation, Western Growers Association) as well as through print, internet, and social media outreach tools, including *California Agriculture* and *ARE Update*.

**Research:** The Specialist will develop an innovative and applied research program that focuses on the application of spatial data to California agricultural production problems using econometrics or other advanced analytic techniques. A substantive portion of this research will be in collaboration with CE Specialists in other disciplines with a focus on applying economic models that are informed by the realities of production agriculture to give actionable advice to farmers. Potential publication outlets will include professional journals in general science and agricultural economics. Research findings could be disseminated to clientele through collaboration with UCCE advisors and local meetings, California Agriculture magazine, industry trade publications, and a variety of internet-based tools.

**ANR Network:** There is a critical gap in the ANR and UC System for an agricultural economist who focuses on production (pre-harvest), uses spatial datasets, and interacts with state, regional, and local policymakers. There is large unmet demand to collaborate with researchers engaged in multi-disciplinary projects with the AES faculty and other Specialists at UCR and beyond. This position also fills the critical gap across the state in “*Community and Economic Development*” and aligns with UCANR’s strategy to revitalize economics within UCCE. This hire will complement UCR SPP’s recent CE Specialist hire in Water Resource Economics and Policy (Nemati) and existing expertise in ANR (Informatics and GIS Program), including Goodrich (economics of sustainable agriculture management), Saitone (livestock, rangelands, & ecosystem management), and Bruno (quantitative policy analysis). It is also expected that the candidate will collaborate with faculty in SPP (e.g., Schwabe, Dinar, Babcock, Rey), and specialists in CNAS and UCCE who have complementary research, including but not limited to McGiffen, Putman, Hoddle, Mauk, Rolshausen, Montazar, Bali.

**Network External to ANR:** SPP is the only other college/school at UCR other than CNAS that has a CE Specialist already (working on water resources and rural development). In addition, SPP has four ladder-rank faculty that have OR appointments and/or ANR affiliations and work in related areas of environment, energy and water resources. Additionally, SPP has three geographers, including GIS specialists, on its faculty, as well as the Center for Geospatial Sciences (CGS), which represents a significant investment by the campus in geospatial sciences. The specialist will collaborate with these other faculty and the CGS, as well as with state and local government agencies (e.g., CDFA, county agricultural commissioners) and USDA- AFRI.

**Support:** There is strong industry support for this position (e.g., commodity groups). The CE Specialist will have office space in SPP. An initial start-up package will be provided for computing, data storage, and an annual operating budget similar to other UCR Specialists. The Specialist will have access to grant support and a systemwide network of economists interested in agriculture through the UCANR Giannini Foundation of Agricultural Economics.

**Other Support:** This Specialist will be in great demand with opportunities for substantial funding to support applied research and outreach. Specific sources include cooperative agreements with CDFA and USDA’s Economic Research Service, USDA NIFA, USDA and CDFA Specialty Crop grants, and funds from commodity groups.

**Location:** This position will be located in the School of Public Policy at UCR.

**Developed and proposed by** the School of Public Policy, UC Riverside. We have received continual feedback from AES faculty, stakeholders, and policymakers regarding the importance of rebuilding ANR capacity in this area.