Proposal for ANR Area Weed Ecology and Management Advisor
Fresno, Kings, and Tulare Counties

Position Title: Area Weed Ecology and Management Advisor

Position: CE This advisor position will provide weed management expertise for cropping systems and non-crop settings of the southern San Joaquin Valley, including Fresno, Kings, and Tulare counties. The position requires a minimum of a master's degree in Weed Science, Agronomy, Horticulture, Crop Science, or a related field, along with weed research experience. A research and extension program will primarily focus on challenges with weeds and weed control practices face the region, ranging from invasive species, herbicide resistance, air and water quality issues related to weed control practices, and the need to develop weed control strategies with emerging mechanical technologies in conventional and organic production systems. The area Weed Ecology and Management Advisor will provide a regional weed science expert who can contribute to the Division's statewide mission through applied research and extension program as well as participation and collaboration in applicable workgroups and Program Teams. There is ample opportunity and need for control of agronomic and invasive weeds as the region faces challenges with water security, shifting cropping systems, and as agronomic and natural systems adapt to a changing climate. An Area Weed Ecology and Management Advisor would complement current UC academics expertise in the region by filling a critical gap in knowledge of weed management.

Justification: Growers in the southern San Joaquin Valley produce a diversity of agricultural crops that includes permanent crops (trees and vines), agronomic crops (cereal grains, forage, and fiber crops), annual fruits and vegetables (carrot, melon, tomato, onion), and in-ground nursery production. Additionally, non-crop settings, including animal range and pasture land, border both the eastern and western portions of the valley. Together with animal agriculture, these crops contributed to a gross agricultural value of $24.9 billion in 2018. Weeds are a critical challenge to the productivity of all agricultural systems (including organic production) and account for a great deal of the production losses, management costs, and labor requirements each year. Growers, pest control industry personnel, and the UCCE network need a weed management CE advisor to provide locally-relevant expertise to address production efficiency, crop safety, and environmental issues related to economically and environmentally sustainable weed management in the production of annual and perennial crops in the region. Weeds not only reduce crop productivity, the practices used to control weeds (herbicides, fumigants, tillage, and labor) are among the key economic, environmental and social concerns in the region. This position will contribute directly to the UCANR Strategic Initiatives: *Endemic and Invasive Pests and Diseases, Natural Systems, and Sustainable Food Systems.*

Extension: The advisor in this position will be responsible for extending their research and education program through workshops, conferences, webinars, individual consultations, blogs, newsletters, trade magazines, social media and UCIPM publications. The Advisor will cooperate with other Advisors and campus-affiliated CE Specialists and Faculty to develop information that addresses weed management needs in the region. Primary stakeholder groups will include commodity-focused CE Advisors, farmers, commercial Pest Control Advisors (PCA), agricultural commodity boards, and government agencies.

Research: The Advisor's applied research program will focus on methods that improve weed management outcomes in crop and non-crop settings and reduce negative impacts of weed management practices on the environment and society. This Advisor position could develop sustainable IPM approaches to weed

management that utilize physical, cultural, chemical and emerging technologies. Although not limited to these, herbicide efficacy and crop safety, organic and sustainable weed control, mechanical and robotic weed control systems all are potentially fruitful areas of applied research for this position. Publication outlets for the research conducted by the weed advisor include UC ANR publications such as *California Agriculture*, extension bulletins, crop production manuals, newsletters, blogs, and Pest Management Guides. Peer-reviewed outlets for basic and applied weed science research include *Weed Technology*, *HortTechnology*, *Weed Science*, *Pest Management Science*, *Agronomy Journal* and other applied science journals.

ANR Network: Weed science is an under-represented discipline with UC ANR and a critical need. Currently, within the geographic area only two CE advisors (0.20 FTE total) include a weed management program component, which is limited to rangeland and home landscapes. This position fills a critical gap in weed management expertise in the intense agricultural systems of the southern San Joaquin Valley. Like other pest management Cooperative Extension personnel, this Advisor would be a primary point of contact for weed management issues in the region. The primary local UCCE collaborators would consist of crop-focused advisors or those with backgrounds in other pest management disciplines; a weed scientist would complement their expertise. This position will fit well connecting and collaborating on statewide weed research with campus specialist and other advisors with a focus in weed science throughout ANR. The San Joaquin Valley and large production area of this position's coverage would fill a large gap and high need for weed management in the state of CA. Glyphosate resistance, invasive weeds, herbicide damage diagnosis and mitigating losses, and general improved management of weeds in both annual and perennial cropping systems are just some of the issues that could be covered with this position. This position tied for the #1 critical position need from the Pest Management Program Team.

Network External to ANR: This advisor will work closely with commodity groups (Almond, Pistachio, Citrus, Cotton, Tomato, Melon, etc), the local ag commissioners, the pesticide manufacturers and distributors, as well as state, regional, and local regulatory agencies that deal with pests, pesticides, and environmental concerns. Depending on the needs, this collaboration could range from simple sharing of information on the practical needs and limitations related to weed management options or to developing research and extension programs to specifically address local needs for the region.

Support: UCCE Tulare County will provide office space, administrative support, transportation, office and IT support for the position.

Other support: The Advisor will compete for research and extension support funding from relevant commodity commissions, internal UC-ANR grant programs, and external funding agencies such as USDA, CDFA, DPR, Western SARE, Western IPM, and the crop protection industry and ag technology companies. This position received high prioritization from the Pest Management Program team and Weed Workgroup.

Location: Position will be housed in the UCCE Tulare office to facilitate interactions with the existing cadre of agricultural advisors, agricultural industry groups, and local and regional government.

Developed and proposed by: Proposed by Karmjot Randhawa, Fresno County Director joint support from Ashraf El-Kereamy from Lindcove Research and Extension Center, with input from the weed science work group. Outside input was solicited from area pest control advisors and other key clientele groups.