

Position Title: Extension Specialist Agricultural Acarologist.

Position Description: 1) general discipline: Entomology, 2) educational and professional background: Ph.D. in Entomology or related discipline. 3) supporting units: the successful candidate will be a CE Specialist in the Department of Entomology at UC Riverside, will be housed at the UC Kearney Agricultural Research and Extension Center (KARE), Parlier, CA, and will have statewide responsibilities. Develop basic and applied research programs focused on reducing the impact of mite pests in agricultural crops, and provide outreach to appropriate clientele to facilitate adoption of new science-based knowledge for management of these pests.

Justification: Ten of the top twenty commodities of California list mites as key pests; grapes (\$4.5 billion crop value), almonds (\$4.4 billion), nursery plants (\$3.5 billion), strawberries (\$1.9 billion), walnuts (\$1.3 billion), tomatoes (\$1.2 billion), cotton (\$0.9 billion), pistachio (\$0.9 billion), oranges (\$0.7 billion) and avocados (\$0.5 billion). Mites are listed as pests in 30 of the 44 agricultural crops described in the UC Integrated Pest Management Guidelines. Pestiferous mites are recurring problems on these crops and growers frequently apply miticides that increase costs of production, potentially affect air, water, or nontarget species and can lead to pesticide resistance in mites. In addition, foreign countries that import fruit and other commodities from California are increasingly requiring that these products arrive mite-free and agriculturally important mite species are being occasionally introduced into California from other countries. In some cases, very little is known about the basic biology of these mites and their potential to become pests. Agriculturally important mite species include web-spinning spider mites, red mites, bulb mites, flat mites, bud mites, broad mites, as well as beneficial mites spanning 8 families and dozens of species. Research is needed on the basic biology of these mite groups and to develop methods of sustainable mite management for California crop systems. Acarology is currently handled by UC farm advisors and specialists entomologists on a part-time basis as pest mite species become important in individual crops. However, mites species are as diverse as insects and entomologist are not usually trained in mite identification. Impacts on agriculture would be greatly reduced by hiring a specialist focused on mite issues who develops expert knowledge, provides information in advance of issues, develops integrated methods of mite management and who can teach UCCE advisors and pest control advisers about agriculturally important mites

Extension: Extension activities to be fulfilled by this position will include development and implementation of educational programs on mite identification, sampling, biology and management in tree and field crops. These efforts may include a variety of approaches including extension publications, newsletters, web pages, web blogging, field days, participation in farm advisor meetings, organization of specific educational conferences, and contributing to UC ANR workgroups and teams as well as UC ANR Pest Management Guidelines. Information generated by the successful candidate's research and the research efforts of other scientists will be extended to a variety of clientele including U.C. Cooperative Extension Advisors, pest control advisers, regulatory personnel, industry representatives, and growers. Publication outlets will include peer-reviewed entomology, pest management, and ecology journals, review articles, book chapters as well as clientele-oriented literature such as California Agriculture, UC IPM manuals, UC ANR Pest Management Guidelines, and commodity-oriented magazines.

Research: Areas of research interest include, but are not limited to, studying the biology and ecology of pest and beneficial mites important in agriculture; design of robust sampling plans for pest and beneficial mites; evaluation of the impacts of pesticides and application methods on pest mites and their natural enemies; resistance management; and developing novel and traditional IPM tactics. Opportunities for coordinating research projects with UC Advisors and other extension clientele are numerous and encouraged and will facilitate evaluation and adoption of novel pest mite management methods.

ANR Network: Collaborative interactions already in place between AES faculty and Cooperative Extension staff on various UC campuses and at KARE, as well as with county farm advisors and various grower clientele, will be utilized. This position would complement the Entomology Advisor positions throughout the state and the agricultural and biological control faculty at UCR, UCB and UCD. These interactions will facilitate identification of critical problems and coordination of research and technology transfer throughout the Division of Agricultural and Natural Resources.

Network External to ANR: Within one quarter mile is the USDA Agricultural Research Service San Joaquin Valley Agricultural Sciences Center, which also supports numerous scientists working on agricultural issues.

Space and Support: An office (ca. 115 ft²) and laboratory (ca. 480 ft²) will be provided at KARE in Parlier, CA. Limited administrative support, office supplies, computing, internet access, and telephone access will be provided at KARE (via DANR). Administrative support will be mainly through the Department of Entomology, UC Riverside. While the successful candidate is expected to support their research and extension program primarily with competitive extramural funding (e.g., USDA-NIFA, USDA-AFRI, WSARE, WIPMC, CA DPR), additional funding may be provided via funds offered within the College of Agriculture and Natural Sciences at UCR and within the Division of Agricultural and Natural Resources.

Other support: Extramural funding may be procured via a variety of sources at the state (CDFA, DPR) and federal levels as well as through numerous commodity boards that support research in California (California Citrus Research Board, California Cotton Research Council, California Almond Board, California Walnut Board, California Strawberry Commission, Table Grape Commission, Avocado Commission, California Tomato Commission, etc.).

Location: The position would be located in the San Joaquin Valley at the UC Kearney Agricultural Research and Extension Center (KARE), Parlier, CA. Location at this Center is advantageous because it is positioned in one of the most productive agricultural areas in California and has on-site agricultural blocks in which research can be conducted as well as potential cooperators in nearby commercial orchards.

Developed and Proposed by: The Department of Entomology at UCR proposed this position. This position was identified as a high priority by the UC ANR Entomology Workgroup and the Pest Management Program Team during the 2015 and 2018 Strategic Initiative Conferences. It is also well-supported by the agricultural commodity boards.