PROGRAM SUMMARY NARRATIVE

This dossier summarizes activities and impacts of my pomology program since attaining Full Title rank in July 1999. It provides evidence of program depth, breadth, and excellence, and documents growth, balance, and recognition commensurate with advanced Full Title status. I have worked hard to build and conduct a program that advances knowledge, addresses the changing needs of my clientele, and provides service back to the University, ANR, and the public.

My program is commodity oriented and problem-focused. My primary clientele are growers, pest control advisors, packers, shippers, and processors. While meeting the needs of my clientele as they try to remain competitive and sustainable my program also addresses key environmental, public health, and food security issues of concern to all Californians.

My research and extension activities focus primarily on walnuts, cherries, and apples. My activities directed toward cling peaches (now handled since 2010 by Brent Holtz), oil olives, pears, apricots, and other assigned tree crops of lesser economic importance in the county are mainly reactive in nature. I respond to calls from clientele with these commodities, but I do not have proactive research and education programs addressing them.

My extension outreach activities can be divided into two broad categories: 1) consulting and diagnostic activities aimed at extending general knowledge and 2) proactive outreach aimed at increasing awareness and adoption of new practices stemming from my research. For both, I rely heavily on individual clientele contacts through phone calls, office visits, farm consultations, and group contacts (meetings, presentations, and publications). To date, I have deliberately chosen not to expand my on-line extension presence through media such as blogs and web pages, as I have found that electronic media are not widely used by my clientele. For me, traditional channels of communication remain effective, and I believe the awareness, adoption, and impacts of the new ideas and technologies I have promoted attest to this.

I work hard to carry the applied research work I do through to appropriate outreach end products like presentations at meetings, newsletters, and extension publications as well as products like technical reports and peer-review publications that capture my work for the longer term. Technical reports I have authored for walnuts, cherries, and apples also serve an important extension function insofar as they are distributed widely to growers and allied agribusiness clientele (in print form and in some cases electronically) throughout the state by these commodities’ respective marketing orders. My bibliography provides evidence of this commitment to adoption and application.

I have worked to conduct a creative, adaptive, and effective program that is responsive to internal and external influences on the industries and clientele I serve, as well as Cooperative Extension. During my Full Title career, these have included:

- Mounting challenges to the competitiveness of California orchard industries, including competition from low-cost foreign producers, export market trade barriers related to pests and pesticide residues, higher production credit, land, labor, and material input costs; and increased government regulation;
- Rapid expansion and varietal diversification of the cherry industry, as growers try to take advantage of early season price premiums by planting new early harvesting varieties;
- Rapid expansion of walnut acreage onto soils formerly considered marginal for orchard development and former orchard sites with accumulated soil-borne pests (coupled with regulatory loss of effective pre-plant fumigants);
- Continued pressure to shorten orchard development time;
- Arrival and establishment of new invasive pests;
At least two cycles of state and county cuts and resultant operational adjustments to accommodate lost ANR and campus-based positions and support and, closer to home, county-paid field and clerical positions, vehicles, travel, and communications support; and

- Increased program administrative responsibilities deriving from ANR administrative consolidation and downsizing.

**Theme: Adaptive research to evaluate improved rootstocks and cultivars**

**Walnuts.** Walnut acreage has expanded significantly over the last two decades, often in old orchard sites with accumulated biological problems such as nematodes and soil-borne plant pathogens, or on new sites with less-than-optimal soil physical characteristics that predispose orchards to soil-related problems. San Joaquin has the second highest incidence of walnut blackline disease (caused by cherry leaf roll virus) among California counties. Walnut growers in San Joaquin County rely heavily on me for research-based information when making decisions on orchard site suitability and preparation, rootstock and variety selection, orchard design, and canopy management options. During the current review period, I continued adaptive walnut rootstock trials aimed at finding solutions for walnut blackline, Phytophthora root and crown rot, and root lesion nematode, the principal causes of orchard decline in California orchards. These efforts included:

- Completion and publication of selected results of a large replicated Farmington area trial comparing 36 commercial Paradox sources and controlled UC Davis crosses, originally planted in 1998 (one of three trials in the Paradox Diversity Study project, an interdisciplinary collaboration among UCCE, the UC Davis, the UCD Walnut Improvement Program, and USDA-ARS);
- Continued evaluation of tree survival, growth, and productivity of UC clonal Paradox selections VX211, RX1, WIP 3, and other rootstocks with superior tolerance to lesion nematode, Phytophthora root and crown rots, and walnut blackline in five replicated trials;
- Completion of a multi-site collaborative trial with Janine Hasey (Sutter-Yuba County Advisor) to evaluate own-rooted walnut cultivars as possible blackline tolerant alternatives to Paradox hybrid rootstocks;
- Establishment of a small trial to evaluate productivity and nut quality of four blackline resistant “Paradox backcross” selections from the UC Davis Walnut Improvement Program;
- Completion and publication of work conducted with Greg Browne (USDA-ARS, Davis) to evaluate seed sources of wingnut (*Pterocarya stenoptera*) as a possible Phytophthora resistant walnut rootstock;
- Completion and publication of two trials comparing orchard performance of numerous English (*J. regia*) seedling and clonal to Paradox hybrid; and
- Completion and extension of results of collaborative work with Janine Hasey documenting generally poor orchard performance of own-rooted walnut varieties.

Through consultations, presentations at meetings, and newsletter articles, I have increased grower awareness and use of two newly released UC clonal walnut rootstocks, RX1 and VX211. Use of these rootstocks in Phytophthora and nematode affected orchard sites continues to increase. Two of my trials are the oldest such test plots in the state. One has confirmed the superiority of RX1 over Paradox seedlings for Phytophthora infested sites and the other is producing excellent information on the growth and productivity of these and other new clonal rootstocks compared to standard Paradox seedlings. Previous to our documenting the superior field performance of RX1, for example, wingnut—which we showed is highly resistant to Phytophthora but incompatible with some varieties—was the only known solution for walnut orchards infected with virulent Phytophthora strains. Our work documenting the sometimes poor performance of own-rooted trees has contributed (appropriately) to a recent decline in interest and planting of these trees.

As I continue to evaluate and observe orchard performance of the new walnut varieties Forde, Sexton, and Gillet in test plantings, I have worked to extend information about these varieties to growers as it becomes
available. These efforts have resulted in increased commercial planting of Gillet and, conversely, less for Forde and Sexton, as trials have gradually exposed undesirable horticultural traits of these varieties.

Cherries. The focus of my efforts in evaluating new cherry rootstocks has been to reduce orchard losses to soil-borne pathogens. While tree size reduction and fruiting precocity remain the drivers of rootstock breeding and testing programs in the rest of the world, the cherry industry here has not placed a high priority on this objective. Early in my Full Title career, I undertook both collaborative and independent trials to evaluate rootstocks in Phytophthora and cherry stem pitting affected orchards, two important causes of tree mortality and orchard decline in the northern San Joaquin Valley. From 1999 to 2007, I conducted a large replicated trial comparing the growth and productivity of trees on Colt and Mahaleb rootstocks to Bing trees on Colt with various interstems. This work showed that these interstems did not improve yield compared to Bing trees on Colt rootstock. Colt remains the solution of choice where risk of cherry stem pitting is present.

Phytophthora root and crown rot is also a major cause of tree death and orchard decline in California. Phytophthora resistant clonal mahaleb (P. mahaleb) rootstocks selected at UC Davis in the 1970s and 1980s showed promise for reducing Phytophthora related losses. From 1996 to 2004, Specialist Steve Southwick and I conducted collaborative orchard trials to compare growth and productivity of these clones to mahaleb seedlings and other standard cherry rootstocks. These trials showed that the clonal selections had productive potential equal (and in one case slightly superior) to mahaleb seedlings but none provided significantly or consistently greater protection against losses to Phytophthora.

Apples. Red color is an important apple quality and marketing attribute, and the warm growing conditions that prevail in the San Joaquin Valley are not conducive to good red color development, especially for the Gala variety. As acreage and interest in growing Gala apples here expanded in the late 1990s, there were many available strains of this variety but little information on their performance under our growing conditions. Highly colored strains offer the potential of improving the competitiveness of California Galas in the marketplace. I established a replicated trial containing trees of eleven commercially available Gala strains in 2001 in the Stockton area. Data on important harvest maturity, quality, and postharvest storage attributes were recorded for the 2003-2007 harvests. Results of this trial showed that three consistently had superior red color development but that strains were otherwise similar in internal quality, maturity development, and post-harvest performance. Partly as a result of our findings, most San Joaquin Valley Gala plantings have since been converted to one of these three strains.

Theme: Reduced risk approaches in walnut production

Alternative management practices for reduced risk orchards. For the past 15 years, I have been a leader in efforts to find and implement scientifically and economically sound practices aimed at reducing pesticide use in walnuts. Codling moth is the key pest of walnuts and accounts for a large portion of insecticide use on this crop. When I started this work, the organophosphate and synthetic pyrethroid insecticides used for controlling moth posed serious environmental, worker safety, and food intake risks and, as such, were increasingly subject to use restrictions and/or de-registration. Pheromone mating disruption (PMD) had been proven effective and was widely used for controlling codling moth in pome fruits in the western US, but pheromone dispensers available for use in those crops were not practical or economical in walnuts. The San Joaquin Walnut BIOS project, which I conceived and conducted from 1998 to 2001, established pheromone mating disruption as a credible alternative to insecticide sprays for codling moth. This project also helped increase recognition and use of other biologically integrated tactics including use of cover crops, in-orchard chipping and disposal of orchard prunings, replacement of pre-emergence herbicides with post-emergence materials, and matching nitrogen fertilizer applications to actual orchard needs. I sought and obtained funding from CDFA’s Buy California Block Grant program to further extend knowledge and use of some of these technologies among walnut growers in Merced, Stanislaus, and San Joaquin Counties in 2002-2005. A publication on nitrogen fertilization we produced through this project was awarded the American Society for Horticultural Science Extension Materials Award in 2007.
The Walnut BIOS project also set the stage for a privately organized and funded statewide mating disruption implementation project that began in 2002. I was one of three area coordinators for this project, and the only UC person invited to be involved in this leadership role.

Since 2005, I have expanded independent and collaborative research and outreach efforts (with Carolyn Pickel, UCIPM Advisor, Steven Welter, UC Berkeley, and other advisors) to refine and promote cost-competitive and effective PMD strategies for walnuts. This work has been funded over the years by grants from USEPA, USDA, and the California Walnut Board. During this time, I also conducted—both independently in San Joaquin County and collaboratively with Farm Advisor colleagues in other counties—large-scale orchard trials to evaluate other ultra-low volume sprayable pheromone rates and spray timing and novel pheromone dispensing technologies (pheromone powders), new population monitoring technologies (traps, lures, and alternative trap placement schemes), and new crop damage assessment protocols to predict harvest damage.

Our recent work has demonstrated that aerosol dispensers reduce resident orchard codling moth populations and the need for codling moth pesticide applications to control it. Our research—and grower experience to date—has shown that one to as many as four annual codling moth insecticide applications can be avoided by the use of PMD. Our ongoing work is focused on reducing the cost of this technology by using lower amounts of pheromone, understanding why performance failures sometime occur in tall canopied orchards, and evaluations of higher density pheromone “meso-emitters” that show promise as a dispensing technology for orchards smaller than the 40 acres considered the minimum appropriate size for aerosol dispensers. Economic and environmental benefits of mating disruption implementation were explored in peer-reviewed articles I helped author in 2008 and 2010.

**Helping growers reduce pesticide run-off.** Eastern San Joaquin County walnut districts have had recurring problems with surface water exceedances of chlorpyrifos and other pesticides exceeding water quality thresholds. Since the early 2000s, I have collaborated with Soils & Irrigation Specialist Terry Prichard in outreach efforts aimed at helping walnut growers identify and correct orchard management practices contributing to these problems. In 2010, we co-authored a comprehensive practical guide for walnut growers, “Controlling Off-site Movement of Agricultural Chemical Residues in Walnut Production”, which is currently being copyedited and scheduled for publication in early 2014.

**Theme:** Using plant growth regulators to enhance orchard profitability and sustainability

**Chemical thinning of Fuji and Pink Lady apples.** I have been a leader in the effort to find effective chemical thinning treatments for apples. Warren Micke (Pomology Specialist, Emeritus, UC Davis), Scott Johnson (UC Kearney Ag Center) and I developed effective chemical thinning programs for Granny Smith and Gala varieties in the late 1980s and early 1990s. I continued this work for the Fuji and Pink Lady (Cripps Pink) varieties on my own during the current review period. Results of this work have been effectively promulgated through extension publications, trade journal articles, professional society presentations, technical reports, group and individual consultations and meeting presentations. The programs we developed are still used throughout California apple districts and are used by the vast majority of growers farming these varieties. Annual net savings realized by growers replacing most or all of their expensive hand thinning with chemical thiner is conservatively at $300/acre, or $3 million annually (on an assumed 10,000 acres).

**Mitigating pistillate flower abortion (PFA) of walnuts.** PFA is caused by excess pollen, and reduces yield as much as 70% in the Serr variety, which is still prevalent in California walnut districts. It can also significantly reduce yields of Chandler, Tulare, and other varieties. I have been involved since the mid-1980s in various projects aimed at identifying the causes and control of PFA and in extending results of these efforts to clientele. Beginning in 2003 with the discovery (by Farm Advisor Bob Beede) that the ethylene biosynthesis inhibitor aminoethoxyvinylglycine (AVG, ReTain®) could reduce PFA and increase nut set and yields in Serr, I have worked both collaboratively and independently to refine use of this product on walnuts, evaluating rates, timing, aerial and split applications, as well as its efficacy on other varieties. As a result of
these efforts, ReTain is now used routinely on around 10,000 acres throughout the state, providing an estimated average net increase of $800 per acre in grower returns.

Cherry rest breaking treatments. Early harvested cherries command premium prices. Chemical rest breaking treatments are used in nearly all southern San Joaquin Valley cherry orchards and 40%-50% of northern San Joaquin Valley orchards to synchronize bloom, advance fruit maturity and harvest date. I collaborated with Extension Specialist Steve Southwick in early work that developed guidelines for the best use of calcium cyanimide and nitrogen fertilizers for this purpose. Dr. Southwick retired in 2004, but I continued work to refine treatment materials and timing recommendations through 2005. I continue to be frequently consulted by growers and pest control advisors from around the state on their use, benefits and risks. Most recently, I have facilitated a joint effort of the California Cherry Board and UC Fruit & Nut Information Center to improve the accuracy and accessibility of accumulated chilling data—needed to accurately time rest breaking treatments—for growers throughout the state.

Improving cherry quality. Sweet cherry acreage and production has expanded dramatically in the past two decades as a consequence of expanding markets and availability of new early maturing cultivars. This, in turn, has led to increasing emphasis on fruit quality (size, flavor, and firmness), as an important component of California’s competitiveness in domestic and foreign cherry markets. During the current review period, I continued collaborative work with AES researchers and others in local trials to evaluate various plant growth regulators, protectants, and bio-enhancers for improving cherry fruit quality, rain cracking resistance, and stem retention. In many instances, these products were found to provide marginal benefit at best. In such cases, I have used this information to save growers money by avoiding ineffective treatments.

Theme: Improving production efficiencies in sweet cherry production

Sweet cherries are harvested by hand; harvest labor represents the largest single production expense (roughly 35% of annual cash costs) for cherry growers. This, along with concerns about the future availability of labor in agriculture, has spurred interest in finding labor saving alternatives to traditional cherry orchard systems and harvest practices. Since 2009, I have collaborated in a multi-state USDA-NIFA Special Crops Research Initiative project (M. Whiting and C. Zhang, Washington State University, PIs) aimed at developing novel production, processing, and marketing systems for cherries. My involvement includes field studies to assess stem attachment and quality of California cherry varieties that may make them candidates for mechanical harvest and to extend information and findings of the project to California growers and allied agribusiness clientele.

In 2010, in collaboration with a nationally coordinated (NC-140) effort, Chuck Ingels (Sacramento County Farm Advisor) and I initiated a replicated trial to evaluate new combinations of size-reducing rootstocks and tree training systems for intensive “pedestrian” cherry orchards.

Theme: Short-stature walnut plantings for electrical transmission corridors

Statutory and regulatory limits on tree height have, for decades, put walnut growers at odds with electrical utilities to maintain safe vertical line clearances in power transmission corridors. The severe pruning practices traditionally used to maintain proper clearances render orchards unproductive, are very expensive to the utilities, and have been the source of longstanding and vigorous controversy between growers and the utilities. At the request of Pacific Gas & Electric Company, I initiated a project in 2007 to explore development of tree training, pruning, and orchard management practices which would allow establishment and maintenance of short stature walnut orchards compliant with tree height regulations. This seven-year project, funded by PG&E, includes seven grower cooperators and fourteen sites in San Joaquin and Sutter Counties. I recruited cooperators, organized a technical advisory panel that advises the project, oversaw the planting and development of new high density plantings at each site where, beginning in 2011, we have
implemented experimental tree training and irrigation protocols to control tree height. This project has both horticultural and economic evaluation components.

It was anticipated that successful practices will be incorporated by PG&E into its right-of-way policies, enabling growers to establish and operate profitable orchards in transmission line corridors. To date, however, most of the approaches we have trialed have failed to keep trees small. The few approaches that have been successful result in significant reductions in yield and/or nut quality. Despite the failure of this project to identify broadly applicable methods of managing highly productive orchards under power lines, it has produced good information on the costs and returns consequences of the management approaches we have tested. How this may impact future PG&E policy and adoption of any of these practices remains unclear at this time.

**Theme: Promoting rational use of water and nutrients**

Irrigation management in walnuts. Irrigation management has been implicated as a major factor in numerous walnut problems, including Phytophthora root rot, branch wilt disease, deep bark canker, and heat damage of nuts. Water is often an expensive and/or limited production input and influences orchard productivity and sustainability. Recent research I have conducted has demonstrated the utility of a portable pressure chamber to measure midday stem water potential (SWP) as a promising new technology for quick and accurate assessments of orchard water status. Used in combination with well understood evapotranspiration estimates, SWP measurements provide growers with timely and accurate data for scheduling irrigations on walnuts and avoid problems associated with over- and under-irrigation. In 2002-2004, I collaborated with Specialists Terry Prichard, Larry Schwankl, and Bruce Lampinen, and Advisors Allan Fulton and Rick Buchner in multi-site trials to compare deficit and full irrigation regimes based on evapotranspiration and SWP measurements. These trials confirmed the usefulness of the pressure chamber for managing irrigations, and documented the impacts of deficit irrigation on walnut tree growth and productivity. Most recently, I helped author a comprehensive ANR publication on irrigation scheduling for walnuts, almonds, and dried plums based partly on this work. Use of the pressure chamber is increasing among growers of these commodities and this new publication, due out in spring 2014, will help increase informed adoption of better irrigation strategies.

Using nitrogen fertilizer efficiently in cherries. In 2008-2010, I collaborated with Dr. Greg Lang (Michigan State University) and Kitren Glozer (UC Davis) in a three-year (three-site) project to study dynamics of nitrogen use and improve fertilizer efficiency in cherries. This project was a funded by CDFA’s Fertilizer Research and Education Program and the California Cherry Advisory Board. Results of this project identified the peak times of nitrogen demands of growth and cropping, enabling growers to choose application timings that best meet in-season and next-season nitrogen needs and reduce fertilizer waste and potential for negative environmental impacts. Moderate nitrogen fertilization was shown to be as good as or better than high nitrogen fertilization levels. These results will enable cherry growers to apply less nitrogen fertilizer, in forms and at times that maximize benefits to tree and fruit while minimizing adverse environmental effects of incorrect or excessive fertilization. We have not had time to assess the impact of this work but our results were made widely available through reports and presentations.

**Theme: Orchard pest & disease management**

Cherry Buckskin Disease (CBD), caused by a spiroplasma and vectored by phloem feeding leafhoppers, has long been a serious problem in San Joaquin County cherry orchards. Thanks largely to broad adoption of orchard sanitation and vector control practices we developed and promulgated in the 1980s and 1990s, losses—though serious—are now limited to sporadic localized outbreaks due to lax CBD management by growers. Specialist Bob Van Steenwyk and I continued to refine buckskin management practices through insecticide screening tests conducted in 1999 through 2001. Since that time, I have continued efforts to promulgate—through individual consultations with clientele and supporting occasional nuisance abatement activities by the San Joaquin County Agricultural Commissioner—best management practices for control of cherry
buckskin disease. In all but the most poorly managed orchards, cherry buckskin disease is absent or remains at low and manageable levels as a result of this activity.

Spotted Wing Drosophila (SWD) invaded California cherry and berry growing areas in 2009, and has since become established here and in many parts of the US and Canada. I have been a key participant in a “rapid response” extension and research effort on the biology and control of this new pest. Since 2009, I have organized educational meetings, published newsletter articles, and held numerous individual consultations to educate and update growers and pest control advisors on this new pest. In the current review period, I continued SWD research and outreach collaborations with Specialist Bob Van Steenwyk and other cherry Farm Advisors with support from the California Cherry Advisory Board aimed at improved understanding, monitoring, and control of this pest. I am also a collaborator and active stakeholder advisory committee member for a $5.5M multi-state NIFA Specialty Crop Research Initiative project from 2010 to 2013. The management programs developed and promulgated by these efforts are used in virtually all California cherry orchards. As a result, SWD related crop losses have been low to nil in the vast majority of orchards for the past two seasons. Collaborative work over the past three years has focused on reducing insecticide use while maintaining effective control through improved trap design, threshold-based monitoring, and use of baited insecticide treatments.

Cherry canker diseases caused by bacterial and fungal pathogens cause serious losses in cherries and other stonefruits. Though the biology and epidemiology of *Psuedomonas syringae*, the causal agent of bacterial canker are fairly well understood, effective chemical controls have never been developed despite many years of research. In 2006-2008, based on previous work by others in almonds, I conducted trials to evaluate fall-applied urea sprays for control of bacterial canker in cherries. My findings showing such treatments to be ineffective, though disappointing from a disease management perspective provided an informed basis supporting growers’ decisions to discontinue these treatments in cherries. Since 2006, I have collaborated with Specialist Doug Gubler (UC Davis) in efforts to identify and understand the biology of canker causing fungal pathogens in cherries. This work identified *Calosphaeria pulchella* as a widespread, aggressive and devastating pathogen of California cherries. Our recent and ongoing collaborative work, funded by the California Cherry Advisory Board, is aimed at developing a greater understanding of factors involved in pruning wound infection and testing of cultural and chemical methods for preventing disease spread.

San Joaquin WEATHERNET. In 1990, I created WEATHERNET, a network of automated weather stations in the principal tree and vine producing regions of San Joaquin and southeastern Sacramento County. This system, co-funded through grant support I secured and ongoing grower station host contributions, has since grown to include seventeen stations. WEATHERNET data are used heavily by growers in planning farming activities, PCAs and consultants to model and manage pests, and agencies and private users for other agriculture-related purposes. Throughout my career, I have continued supporting the network by monitoring station communications and functionality, troubleshooting occasional malfunctions, overseeing contracted station maintenance and repairs by a Chico-based company, and serving as a liaison to the UC Integrated Pest Management program, which makes network data available to users through its web site. With increased use of rest breaking agents in cherries, use of WEATHERNET data–along with treatment guidelines we published–for monitoring chilling accumulation and timing rest breaking treatments has increased in recent years.

Walnut apoplexy, a sudden collapse disorder of walnut trees has decimated large orchards in this and other areas of the state since (at least) the mid-1980s. I have conducted a number of studies over the past two decades in Lockeford and Linden to better understand the cause and correction of this problem. In 2007-2008, collaborative work with Dan Kluepfel and Andrew McElrone (USDA-ARS, Davis) shed considerable light on physiological mechanisms underlying this disorder. Its cause and correction, however, remain unknown.
PROFESSIONAL COMPETENCE

I strive to further my competence by taking advantage of in-service training and other professional development opportunities as they arise. The number and diversity of such activities I have undertaken over the past three years are typical of other periods throughout my career. These have included involvement in ANR workgroups and continuing conferences. I am a long-time and active member of the apple, cherry and walnut workgroups and Pomology Extension Continuing Conference, and have been intermittently involved in activities of the pear, cling peach, sustainable agriculture, spray technology, and dried plum workgroups.

State and national recognition of my expertise has grown, reflected in invitations to serve on a variety of state technical and stakeholder advisory committees. Over my Full Title career, these have included: reviewing projects and proposals as a member of the ANR Biologically Integrated Farming Systems Program Advisory Review Board (2002-2005); serving on four teams assembled to develop UCIPM Guidelines and Year-Round Plans for walnuts, cherries and apples (2006 to present); contributing expertise to stakeholder committees advising the UC Davis Agricultural Sustainability Institute’s Nitrogen Assessment project (2010-2012) and another on Biology and Management of Spotted Wing Drosophila (2010-2013); service on an advisory committee that helped guide the focus content of videos on IPM for a CDFA-funded project by Marshall Johnson; active involvement in two advisory committees that helped shape the focus and methods of three UC Davis based projects on impacts of climate change and changing regulations on walnut orchards and pest management; and service on at least three committees tasked with assessing the feasibility, refining, methods, and evaluating the impacts of proposed international phytosanitary protocols on cherry and walnut orchard management practices.

My international reputation has also grown during my Full Title career, reflected in frequent invitations to consult and make presentations to grower and professional audiences in Moldova (1999, apples), Australia (2003, cherries), Chile (2009, walnuts and extension organization and operations), Iraq (2010, multiple horticultural topics), and China (2011, walnuts). In 2012, and again in 2013 I was invited to Uzbekistan to consult on a USAID funded project to assess cherry production and handling practices and provide advice on the modernization of the Uzbek cherry industry. I am also frequently engaged by international visitors to host local orchard tours and discuss production practices. Since 1999, I have done this for visiting groups from Republic of Georgia (1), Uzbekistan (4), Tajikistan (1), Spain (1), France (2), Turkey (8), Chile (11), Argentina (4), Tanzania (1), Japan (1), and China (6).

My research expertise and understanding of the walnut industry led to my 2005 appointment as a member of the California Walnut Board’s (CWB) Production Research Advisory Council (PRAC), a new and select ten member group of researchers, advisors and walnut industry representatives charged with setting long-term strategies and priorities for CWB’s walnut research program. From 2008 to 2013, I also co-chaired two PRAC Working Groups: Entomology and Orchard Management. Throughout this period, I worked in a leadership role in many PRAC initiatives and activities that have helped shape CWB’s research priorities and programs. Reflecting my commitment, contributions, and leadership abilities, I was appointed PRAC Chair in December 2012. The PRAC Entomology Working Group was recognized in late 2013 with a California Department of Pesticide Regulation IPM Innovator Award.

In my role as cherry Farm Advisor for the principal cherry growing region of the state, UC Cherry Workgroup Chair, and UC Liaison Officer for cherries, I have functioned as the de facto statewide Specialist for sweet cherries since that UC Davis position was vacated in 2004. My annual Cherry Research Review is recognized and attended by cherry growers and packers from across the state, and I receive and respond to many phone and email requests each year from these individuals. I am also considered by out-of-state researchers and extension personnel as an informed point of contact for cherry information and project collaborations. Recent examples include cherry and walnut collaborations with Washington State University, Oregon State University, and Michigan State University researchers.
I served on the Communications Advisory Board from 1999 to 2001. I was fortunate to be involved with ANR Communication Services during this formative period, and I contributed substantially to the formulation of new publication and editorial policy that helped make ANR publications the standard of outreach excellence that they are today.

I am proud of my contributions to ANR during my eight years of service as Associate Editor for Pomology, Viticulture and Subtropical Horticulture (1995-2003) and subsequent seven years of service as ANR Associate Editor Chair (2003-2010). During my Full Title tenure as Associate Editor, I managed the peer review of 157 individual publications and manual chapter manuscripts and, as Chair, an additional ten. As Chair, I led efforts to develop and improve ANR’s peer review system, worked actively to assist, coordinate, and support ANR Associate Editors. As an ex officio member of the Communications Advisory Board during this time, I represented Associate Editors and provided input to the Board on editorial and publication policy and practices.

UNIVERSITY AND PUBLIC SERVICE

I have worked to make contributions to UC and ANR through academic and programmatic committee service. From 1996 to 1999, I served as a member of the UCANR Academic Assembly Council Personnel Committee, then as Chair and in 1999-2000. As Chair, I led the effort to gain approval, develop guidelines and instructions, and implement the “mini PR,” the forerunner to today’s streamlined merit and promotion formats. I have also served on the AAC Program Committee since 2011, and was appointed Chair in 2013. During this period, I helped evaluate nominations for ANR Distinguished Service Awards and helped write new “Quick-start” and mentoring guides for use in new Advisor orientations.

During my Full Title tenure, I also served in a number of programmatic advisory roles, including an ANR focus group on advisor status (2001), UCIPM strategic plan focus group in 2006 and ongoing Specialist and Advisor position planning coordinated by the Pomology Extension Continuing Conference and ANR Program Teams with which I am affiliated. While in Full Title, I also served on three academic position search committees and three ad hoc peer review performance committees. I chaired the search committee for the San Joaquin County Director position in 2009.

As stated above, I have been a long-time active member of commodity workgroups. I have chaired the Sweet Cherry Workgroup since 2005 and, for the Walnut workgroup, served as Walnut Research Conference chair in 2008 and helped organize and lead a workgroup training tour in 2013.

While in Full Title, I have served on several UC commodity research advisory committees (RAC), which annually review research proposals to their respective commodity boards. These have included the Pear RAC in 2000-2001 and again in 2011-2013, the Dried Plum RAC in 2009-2011, and the UC Nickels Estate RAC in 1999-2002 and again in 2008-2011.

I have served as the UC Research Liaison officer to the cherry industry since 2004. I was also research liaison to the California Apple Commission from 2008 to 2012. In these roles, I helped foster cooperation between these industries and the University and facilitate these industries’ applied research funding activities. The workload and responsibilities associated with my cherry research liaison position increased greatly during the current review period, as the cherry industry undertook to expand and reorganize its state marketing order to include all state cherry acreage and dramatically increase its annual support of applied research.

I have served as Pest Management Associate Editor for California Agriculture magazine since 2010. Since my appointment, I have managed the peer review of one to four manuscript per year and, as a member of the editorial board, helped shape the journal’s editorial policies and procedures.
Since 2011, I have served as an alternate Academia & Public Foundations member of the California Department of Pesticide Regulation Pest Management Advisory Committee (PMAC). In this capacity, I attend occasional PMAC meetings in place of member Janine Hasey. Janine and I also share responsibilities of reviewing proposals for DPR’s annual Pest Management Alliance and Pest Management Research grant programs.

My Full Title public service activities demonstrate depth, growth, and excellence. They evince my commitment to working in diverse environments to further the welfare of the clientele and industries I serve, as well as the general public. I have served on advisory and operational committees of the California Alliance with Family Farmers (2000-2001), the Mid-Valley Apple Association (1997-2006), California Cherry Growers and Industries Foundation (1999-present), and an informal maggot (1999-present) advisory committee organized by the San Joaquin County Agriculture Commissioner (2002-present). I also worked closely with Agricultural Commissioner and California Dept. of Food & Agriculture staff in developing appropriate orchard management protocols in connection with an Oriental Fruit Fly quarantine imposed in 2011-2012. I frequently provide assistance to USDA Farm Services Agency staff on their crop loss and environmental subsidies programs; local insurance agents, underwriters, attorneys, and individuals on agricultural insurance claims; and the San Joaquin County Agricultural Commissioner’s office on nuisance orchard abatement actions. I have also represented the University as a local science fair judge (2003 & 2004), frequent presenter at “AgVenture,” a San Joaquin Office of Education sponsored activity for third graders (2008-present), and at the annual Stockton Ag Expo trade show that ran until 2008. Once or twice a year, I also attend San Joaquin Farm Bureau Directors’ meetings in place of our County Director.

AFFIRMATIVE ACTION

Annual Affirmative Action self-assessments have shown my program to be in in parity and equity compliance throughout my career.

I was vigilant for opportunities to increase my understanding of equal opportunity related issues as they pertain to my program and clientele. In April 2001, 2004 & 2008, I attended a DANR training workshop on disability awareness. This was the only affirmative action training offered to Central Valley Region Advisors during the review period.

In 1999-2002, I coordinated efforts with the Collegiate Academic Preparatory Science Research Achievement Program at UC Davis, to recruit high school age minority students as summer interns to work in our office. Through summer job experience, the program encourages participants to pursue scientific careers at UC. Our experiences with CAPSRAP was a win-win situation: the interns provided help to advisors with their lab and field work, and the students had an enjoyable and enriching work experience that broadened their horizons.

I proactively seek out minority members of my primary clientele when looking for suitable locations for research and demonstration trials. I have had several such cooperators during my tenure in Full Title. I employed several female field assistants over the course of this review period, one of them Asian, for three years and another, who was learning disabled for one summer.

I frequently interact with farm laborers, contractors, and managers—many of whom are of Hispanic origin—in connection with research trials and on-farm consultations I conduct. I speak Spanish well enough to communicate effectively with native Spanish speakers. Though not included in my primary clientele, I always make an extra effort (in Spanish) to provide answers to farm call questions or explanations of research objectives and procedures to these individuals. These interactions help me to improve my Spanish and better understand Hispanic culture and issues facing Hispanic workers in agriculture. I feel they also promote science literacy among orchard workers and improve their understanding of horticultural fundamentals underlying orchard operations. Of course, they also help ensure a successful research outcome by giving workers a sense of shared and informed involvement in a given project or trial.