Award Category: Lifetime Achievement Peter Goodell

Nominator Name: Jim Farrar
Nominator Company/Affiliation: University of California
Nominator Title: Director UC IPM Program
Nominator Phone: 530-750-1249
Nominator Email: jjfarrar@ucanr.edu

Nominee Name of Individual: Peter Goodell
Nominee Affiliation (if applicable): University of California
Nominee Title (if applicable): Area IPM Advisor
Nominee Phone: (559) 646-6515
Nominee Email: pbgoodell@ucanr.edu

The Nominee is From
United States/Canada

Are you aware if the nominee has plans to present at the 2018 Symposium in Baltimore?

Not Sure

1. Summary of nominee's accomplishments (500 words or less)

Dr. Peter Goodell was hired as an Area IPM Specialist (title later changed to Area IPM Advisor) in 1981, two years after the initiation of the University of California Statewide IPM Program. He was one of the original county-based IPM academics in California, covering Fresno, Madera, Tulare, Kings, and Kern counties. From 1981 to 1994 he was based in the Kern County office of UC Cooperative Extension and moved to Kearney Agricultural Center in 1994. Goodell's career focused on advancing IPM adoption in cotton, alfalfa, and dry beans, but he has also contributed to IPM for almonds and vegetable crops. His scholarly output in research and extension includes 155 popular articles, 29 peer-reviewed journal articles, 36 other peer-reviewed publications, 91 technical reports, and 22 poster abstracts. He has an international reputation, having given 12 presentations at international meetings and been an invited participant in the European Union, Pesticide Use and Risk Reduction in Europe (PURE). In his early years, Goodell focused on IPM tactics for specific pests and host crops, such as, nematodes on cotton. In the middle of his career, in addition to developing and delivering technical IPM information for specific pest / crop combinations, he was working more broadly to address IPM across landscapes and seasonality of pests and crops. He is recognized for his strong collaborations such as those with Natural Resources Conservation Service to address the soil, air, and water impacts of pest management and to develop the PRiME (Pesticide Risk Mitigation Engine) model. He became a leader in the Association of Applied IPM Ecologists, a professional organization of applied IPM professionals. Later, Goodell explored the human behavior dimension of IPM adoption, by incorporating information from the social sciences to

improve IPM learning and adoption. Because of his knowledge in this area, California Department of Pesticide Regulation (DPR) funded Goodell to identify the critical uses of chlorpyrifos in alfalfa, almond, citrus and cotton in California. DPR leaders knew that chlorpyrifos had significant human-health and environmental risks and that growers may have significant economic risks from specific insects if it was no longer available. Goodell convened meetings of growers and pest control consultants for the four crops and through a process of facilitated discussions identified the uses of chlorpyrifos for which there were few or no other options. Currently, Goodell is leading a DPR funded project to host discussions pests, pesticides, and IPM broadly throughout California. As a foundation, the project assumes that pests are part of every persons' experience and pest management is necessary to protect society. The hope is the project will generate a consensus statement about risks from pests and pesticides, and provide direction for the future of IPM in California. That will be an incredible final accomplishment for Dr. Goodell's career.

2. Describe the goals of the nominee's program being nominated; why was the program conducted? What condition does this activity address? (250 words or less):

   Dr. Peter Goodell was hired as an Area IPM Specialist in 1981. With Goodell's leadership, UC IPM has developed into a well-known and respected resource for practical IPM information. During Goodell's career, IPM moved from a fringe concept for insect pest management to a central tenet of management for all pests in all situations. All the while, he has continued to push the boundaries of IPM. Early in his career, Goodell focused on reduction of use of broad-spectrum insecticides and development of easy to implement scouting methods. For example, he was instrumental in the development and adoption of time saving presence/absence sampling for mites in cotton. Mid-career, Goodell helped to pioneer year-round IPM programs as a result of his collaborations with the Natural Resources Conservation Service. Year-round IPM programs describe pest management activities important for that crop stage or season, and addresses key pest management for multiple pests. This departed from addressing one pest to a more holistic program focused on prevention and decision-making. UC IPM now has year-round programs for 25 crops and recently expanded the concept to develop seasonal landscape IPM checklists for four eco-regions in California. Later, Goodell was one of the first to incorporate social science concepts regarding the drivers of change in behavior into IPM learning and adoption. He was a founding member of the group that developed the Toolkit for Assessing IPM Outcomes and Impacts.

3. Describe the level of integration across pests, commodities, systems and/or disciplines that were involved. (250 words or less):

   Goodell is the Area IPM Advisor for nematology and entomology in cotton and field crops in the San Joaquin Valley of California. This five-county area includes Fresno and Tulare counties, which are consistently the two top agricultural counties in the

nation. He has collaborated with cotton and field crop agronomic extension advisors, Natural Resource Conservation Service field personnel, and licensed pest control advisers to develop and support adoption of practical field-oriented IPM. This has contributed to the premium quality reputation of California cotton and to the alfalfa yields necessary to feed California's nation-leading dairy industry. Goodell implemented the concept of landscape-level IPM on the ground through area-wide pest management. Today, a collaborative group of farmers in the 4 million irrigated acre Tulare Lake Basin manage lygus bug in safflower to prevent lygus damage to cotton and tomatoes, reducing insecticide applications in these crops. Goodell not only worked across pests, commodities, and agricultural disciplines, he also led the incorporation of impact evaluation in IPM. He helped colleagues understand the importance of documenting change in knowledge and change in behavior through social science methods to establish the impacts of IPM programs on society and the environment. Recently, he collaborated with colleagues from across the nation in the iPIPE (IPM Pest Information Platform for Extension) projected funded by AFRI.

4. Describe the team building process; how did this person being nominated; get partners involved? Education and awareness are essential in an IPM program. (250 words or less)

Goodell is an excellent team builder and partner. Throughout his career he partnered with diverse collaborators to increase adoption and impact of IPM programs. He helped to found the IPM Partners group in California, a collaboration of UC IPM, Natural Resources Conservation Service, California Department of Food and Agriculture, and California Department of Pesticide Regulation. This group recently proposed updating the NRCS Conservation Practice Standard 595 (IPM) to shift from mitigating the natural resource impacts of pesticide applications to prevention of the need for pesticide applications through IPM practices. The Sustainable Cotton Project sought Goodell as a collaborator based on his previous work and reputation in the industry. Goodell provided technical support for growers to reduce economic risks from pests, as well as reduce risks to human health and the environment from pesticide use. Goodell was an early adopter of using of social sciences methods to document knowledge and behavior change in IPM. His landmark survey of IPM practices California almond growers in 2000 is the baseline survey of IPM adoption in this commodity, now worth over $6 billion. It also serves as the basis for evaluating pest management practices of the California Almond Sustainability Program self-assessment.

5. What outcome describes the greatest success of the program? (250 words or less)

Over the last 36 years, Peter Goodell has contributed to IPM moving from a fringe concept to standard practice for pest management. Frank Zalom, UC IPM Director from 1988-2001, recounts a story of a prominent extension entomologist in the early 1980's referring to UC IPM advisors as "Jerry's boys."This intended derogatory remark was based on the IPM program being funded with support of then Governor Jerry Brown, himself also derided as "Governor Moonbeam." Despite the naysayers, Goodell implemented the mission of adapting IPM science to applied IPM practices that could be

adopted by growers and pest control consultants. His keen technical IPM skills, excellent interpersonal capability, and internal fortitude led to widespread acceptance of IPM. Today, IPM is the standard practice for pest management in California. As evidence, Laws and Regulations and IPM are the two base components of the state-licensing exam for all pest control advisers through the California Department of Pesticide Regulation.

6. Provide evidence of change in knowledge, skills, behavior, or condition because of the program/individual. (250 words or less).

   Peter Goodell has contributed to change in knowledge, skills, behavior and condition in both his agricultural clientele and the extension IPM community. When Goodell was hired in the UC IPM Program in 1981, calendar-based spray schedules were the norm, organochlorines were still registered, organophosphates and carbamates were typical insecticides, and aldicarb was a standard at-planting cotton insecticide. Today, scouting and degree-day models inform pesticide application decisions, reduced-risk insecticides and conservation biological control are commonplace, broad-spectrum insecticides are used less frequently, and organochlorines and aldicarb are no longer registered. These changes have reduced human-health and environmental risks from pesticides. At the same time, yields and quality have increased in cotton, alfalfa, tomato, and safflower in the San Joaquin Valley of California. Goodell has contributed to these changes by tirelessly providing practical IPM information to reduce economic, human-health and environmental risks from pests and pest management practices. Goodell has been at the forefront of IPM impact evaluation for years. He contributed to our understanding of the need to evaluate change in knowledge and change in behavior using social science methods in order to document the impact of IPM projects and programs. Because of this, meeting evaluations and surveys of practices are now commonplace in extension IPM programs.

7. Attachments: Please include the Nominee's Vita (Nominator you can either provide a direct link to nominee's Vita or send email to Janet Hurley at jahurley@ag.tamu.edu with subject line "IPM Lifetime Achievement Award Vita include nominee name".)

CV sent

SECTION 3. CURRICULUM VITA - PETER B. GOODELL

Education:

1974 B.A. - Ecology/Systematics - San Francisco State College (cum laude)
1979 M.S. - Entomology/Nematology - University of California, Riverside
Thesis: Investigations into the Distribution of and Optimal Sampling Technique for Plant-Parasitic Nematodes in Alfalfa
1986 Ph.D. - Entomology/Nematology - University of California, Riverside
Dissertation: Development of a Computer Model to Simulate the Overwintering Population Biology of *Meloidogyne incognita* on Cotton in the San Joaquin Valley of California.

Experience:

1974-1976 - Licensed Pest Control Advisor - Merced, Fresno, and Madera counties (#5699)
1976-1981 - Research Assistant, Department of Nematology, UC Riverside
1981- 1985 - IPM Specialist, Southern San Joaquin Valley, Statewide IPM Project, Cooperative Extension, Univ. Calif.
1985 - 1991 Area IPM Advisor, Statewide IPM Project, Cooperative Extension, Univ. Calif.
1989 – 2011 UC IPM Extension Coordinator
1991- 2017 Cooperative Extension Advisor, IPM - Kearney Agricultural Center, Statewide IPM Program, Univ. Calif.
2006-2009 Interim Director, UC Statewide IPM Program
2006- 2017 Associate Director, IPM –Kearney Ag Center
2014-2017 Co-Associate Director, Agricultural IPM, UC Statewide IPM Program

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Relevant Activities:

Member, Executive Committee, Pacific Branch, Entomological Society of America -2003-2006
Member, Awards Committee, Pacific Branch, Entomological Society of America – 2012 - present
Training Coordinator, Western Plant Diagnostic Network – 2004-2006
Member, Cotton Insect Research and Control Conference, Insect Loss Estimate Committee, 1981-2013
Co-Organizer, Second International Lygus Symposium, Pacific Grove CA April 2007
International Heteroptera Symposium, Seaside, CA April 2017
Co-chair, UC Ag & Nat Resources Pest Management Coordinating Conference - 2002-2008

Research: Field crop IPM with particular interests in *Lygus* spp., *Bemisia* spp., *Tetranychus* spp. and *Meloidogyne* spp. on cotton, beans, and alfalfa. Other areas of activity include development of sampling technology and action thresholds, implications of regional pest management, use of satellite imagery and GIS applications to landscape level IPM. Taking IPM from the field & farm to ecosystem considerations has been a focus. Over 150 papers, book chapters, and proceeding articles have been published.

Extension: Primarily responsible for the implementation of IPM tactics in field crops. A high priority has been given to improving the delivery of IPM information. Accomplishments include development of centralized extension newsletters, coordinating whitefly extension activities, coordinating IPM extension activities in cotton, integrating participatory research and extension activities into community level outreach, developing the use of computers and knowledge based software in cotton production. Over 150 newsletter articles, news releases, interviews, and fact sheets have been published. Extension presentations average 30 per year. Development of programs with public and private partners.