

# UC develops expanded agenda to combat exotic pests

James M. Lyons

The introduction of exotic plant and animal species to California has been continuous since the first settlers brought them to supply traditional foods. They also brought ornamental plants to recreate the landscape of their homelands. With few exceptions, these introduced species have been beneficial and, in fact, have formed the basis of our food and fiber production system. The only crop plant truly endogenous to the continental U.S. is sweet corn! Only when introduced exotic species seriously threaten agriculture, human health or the environment do they become labeled as exotic "pests".

## Eradication vs. establishment

There are significant policy questions influencing the research agenda: Has an exotic pest (the Mediterranean fruit fly) the potential for eradication? Is there evidence that no potential for eradication of a pest (the Africanized honey bee) exists? Has the pest (strain B of the sweetpotato whitefly) become permanently established before it is recognized as a potential threat? Certainly the Northern and Southern California Mediterranean fruit fly eradication projects, the Africanized honeybee find in Kern County, and the current sweetpotato whitefly explosion in Imperial Valley focus public media, government and scientific attention on the importance of these episodes.

From a regulatory perspective, the director of the California Department of Food and Agriculture (CDFA) is obligated to attempt, where feasible, the eradication of any species judged to pose a significant threat to human health, agriculture or the environment. The department maintains a program to prevent the entry and establishment of potentially damaging exotic species by focusing activities on exclusion, early detection, eradication and public information.

From a research and extension perspective, the University of California conducts programs to develop and apply new knowledge for managing these exotic pests regardless of whether the goal is to eradicate, control or minimize their negative health or agricultural impact. In carrying out these activities, UC has advanced

genetic improvement of crop plants and natural enemies, microbial pest controls, the use of cover crops and cultural controls, pheromone development, and the selected use of chemical controls within an integrated management program.

## UC's Center for Pest Management

The Center for Pest Management Research and Extension was established by Vice President Kenneth R. Farrell in April 1991. The center provides statewide leadership and coordinates pest management research and extension activities in the Division of Agriculture and Natural Resources (DANR), and serves as a clearinghouse for pest management information. It carries out many of the recommendations of Assembly Bill 4161 sponsored by Assemblyman Richard Katz (D-Panorama City). The center is advised by an external Policy Advisory Board and an internal Technical Advisory Committee.

Since its establishment, the center has taken several actions related to exotic pest management:

- It currently represents DANR on the Governor's Emergency Whitefly Panel, an interagency group whose function is to develop an action plan to combat the sweetpotato whitefly devastation of crops throughout Southern California. Center personnel are working with the UC Berkeley, Davis and Riverside faculty, as well as Cooperative Extension farm advisors from affected counties, to forge the university's contribution to this emergency action plan.
- With Vice President Farrell, the center developed a proposal to add a \$2 million augmentation to the University's 1992-93 budget for pest management research. These funds would be administered by the center for a competitive grants program to fund research in critical, high-priority areas. Having these resources available for directed research grants would position DANR to respond rapidly to crises such as the sweetpotato whitefly explosion in Imperial and Riverside counties, as well as to fund the longer term search for parasites and predators needed to control exotic pests.
- Center personnel coordinated an interagency proposal which yielded

\$207,000 in preliminary planning funds for new quarantine and containment facilities on the UC Davis and Riverside campuses. Developed in cooperation with CDFA and the USDA-Cooperative State Research Service (CSRS), this \$34 million proposal was the result of Congressional interest in these new facilities and a joint CDFA/UC committee established by the California Legislature to report on quarantine and containment facility needs. The committee identified high priority research needs in California and the nation, including specialized quarantine and containment facilities necessary to develop pest management alternatives. Among these are research on biological control agents, engineered/recombinant germplasm and exotic germplasm.

• With collaborators, the center obtained \$295,000 to combat the Mediterranean and Mexican fruit flies by accelerating research on improved lures and traps and alternatives to aerial spraying. The collaborative project was proposed jointly by the U.S. Department of Agriculture — Agricultural Research Service (USDA-ARS) and UC scientists, in response to special funding offered by the CDFA. Major components of this project include (1) research on new lures based on natural attraction of the flies to potential mates and food sources, (2) development of an insecticidal protein as a biopesticide, and (3) fundamental work to understand the effects of climate and host conditions on the invasion potential, and propensity for colonization, of these flies. Funding also supported a workshop to bring key scientists together to share fruit fly research results and implementation plans. These scientists also developed a comprehensive research agenda and priorities to focus the research investment.

The subsequent articles in this issue describe not only the profound impact of exotic pests on California, but also the impact of UC research, as well as CDFA's regulatory actions, on the management of those pests.

*J. M. Lyons is Director, Center for Pest Management Research and Extension.*