UC 25 IPM 1980–2005

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University of California
Statewide Integrated Pest
Management Program

HIGHLIGHTS

ANNUAL REPORT

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UC Statewide IPM Program celebrates 25 years

In May, the UC Statewide IPM Program celebrated its 25th anniversary as an organization committed to reducing pesticide use and to finding nonchemical alternatives to keep pests in check.

Following on the heels of an Environmental Pesticide Assessment Report by the California Department of Food and Agriculture, UC researchers developed a proposal for a statewide integrated pest management program. In 1979, the State Legislature funded UC to create the UC IPM Program.

Staff used a holistic, problem-solving approach, combining the talents and insight of interdisciplinary teams of researchers to develop a comprehensive approach to pest management.

"UC IPM is the very best example of the research and extension continuum that we strive to instill in our programs to better serve the public—IPM academics and staff create, develop, and deliver new information to the public," said W. R. Gomes, UC vice president, Agriculture and Natural Resources, at IPM's 25th anniversary dinner in May. "… UC IPM has become the model for other IPM programs in the nation and the world."

Over the years, UC IPM has expanded its educational and research arm beyond agriculture to include urban residents, schools, public agencies, landscape professionals, and public health.

Photo by Jack Kelly Clark

Mission of the UC IPM Program

Since its inception, the mission of the IPM Program has been to serve the people of California by

- Reducing the pesticide risk to the environment and protecting human health
- Increasing the predictability and effectiveness of pest management techniques
- Developing pest management programs that are economically and environmentally sustainable, and socially appropriate
- Providing leadership for IPM and building coalitions and partnerships that link with communities and public agencies
- Increasing utilization of biological and ecologically based pest management programs

>>> Look for the Annual Report link on the UC IPM home page to read the full text of these articles, plus more on UC IPM activities.

Rick Roush

From the director

In May, the UC Statewide IPM Program celebrated its 25th anniversary with a dinner at UC Davis. Many of our current and past employees and participating faculty attended, and it was a great opportunity to catch up with long-time friends and to reflect on the enormous accomplishments of the program.

Time is a precious commodity for everyone interested in IPM. For that reason, we are trying something new for the UC IPM annual report in this 25th year: a shorter version, focused on highlights that will offer you the flavor of what we have accomplished in a more succinct format. You'll still be able to find more details on our Web site, www.ipm.ucdavis.edu.

It's impossible to offer a complete picture of all that we do or to properly acknowledge the hard work of our highly dedicated staff. This brief snapshot cannot fully capture the holistic nature of the IPM Program, including how we work every day to identify new and practical solutions to critical problems, and how the program integrates the efforts of researchers, extension staff, writers, web producers, and programmers into delivery of environmentally, economically, and socially sound pest management practices.

I am confident that as you read this report and peruse our Web site, you will agree that the UC IPM Program continues to be an extremely effective contributor to the range of pest management needs in California and has focused on many of the most important ones.

Hackberry aphid: Pest Note update and ongoing research

The Asian hackberry woolly aphid was introduced into California in 2002. It spread quickly throughout the state, infesting Chinese hackberry trees. The aphids produce excessive amounts of honeydew, creating a nuisance and prompting pesticide applications to trees that had been relatively pest- and pesticide-free.

Photo by Jack Kelly Clark

Long-term strategies such as biological control and preventive aphid control need further research. Mary Louise Flint, entomologist and IPM Education and Publications director, and Steve Dreistadt, UC IPM senior writer, are studying the influence of irrigation practices, reduced pesticide rates, and treatment timing for aphids and scales infesting hackberry trees on the UC Davis campus. Their study is coordinated with hackberry aphid research by Andrew Lawson, assistant professor, California State University, Fresno, and Pamela Geisel, environmental horticulture advisor, UCCE, Fresno. University of California's Elvenia J. Slosson Endowment Fund and UC Exotic/Invasive Pests and Diseases Research Program are funding their research at several Central Valley sites.

Pest Note: Hackberry Woolly Aphid (ANR 74111) has been revised to summarize expert observations and preliminary results of research on this new exotic pest. The revised Pest Note provides more information on integrating aphid control with management of less-widespread hackberry problems: citricola scale and an unidentified malady believed to be a new vascular wilt disease.

UC IPM Makes It Happen

Searching for organic ways to control cucumber beetles

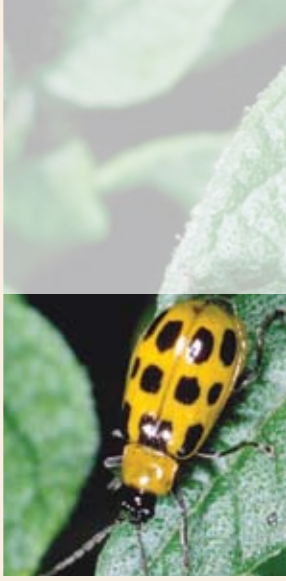


Photo by Jack Kelly Clark

UC IPM Advisor Phil Phillips is field testing a new product to control western striped cucumber beetles in cucurbits, a pest many regard as the number one insect problem for organic growers.

Cucumber beetles are serious pests of smooth-skinned cucurbits, especially melon varieties such as honeydew, crenshaw, and casaba. The beetles chew holes in leaves and scar young fruits.

"No effective cultural controls exist for these pests, and natural enemies are rarely effective enough to reduce populations below economically damaging levels," says Phil. "You have to spray it directly, and its larvae feed on cucurbit roots where they can't be reached for control."

Cucumber beetles have a greenish-yellow body with black spots or alternating black and yellow stripes. They migrate into cultivated areas from alfalfa and other crops and from uncultivated lands. Cucumber beetles like moisture and dislike heat; consequently, melon fields are especially attractive in hot weather during and after an irrigation.

Phil is experimenting with incorporating an organic insecticide with an attractant and feeding stimulant to control cucumber beetle adults.

"Initial tests around the state this season look encouraging," says Phil. "The product is dribbled onto the vegetation row, drawing in the adults to feed. We have more field tests planned to find the most efficient combination of attractant and toxicant. In the past, this beetle has been difficult to kill and has required broad-spectrum products that aren't certified for use by organic growers to obtain reasonable control."

Photo byStephanie Klunk

Local farmers attended a soil solarization field day presented by the UCCE at Tom Willey's organic farm in Madera this summer.

Madera farmer praises the benefits of soil solarization

Tom Willey is spreading the word about solarization and how this inexpensive, chemical-free approach killed the weeds plaguing his 75-acre organic farm in the Central Valley.

In July 2005, Willey spoke to nearly 30 people at a workshop on solarization sponsored by UCCE at his farm in Madera. Jim Stapleton, plant pathologist and IPM advisor for the UC Statewide IPM Program, and Richard Molinar, UC Small Farm Program advisor for Fresno County, joined him for the presentation.

Soil solarization works like a greenhouse to trap the sun's heat to raise temperatures that kill insects, plant diseases, weed seeds, nematodes, and soil pathogens. The process has become a widespread and growing practice for organic growers, home gardeners, and other users. Jim has published several technical articles describing the science behind the technique and also guides for end users who would like to use solarization in their own gardens or farms (http://vric.ucdavis.edu/veginfo/topics/soils/soilsolarization.pdf).

>>> Read the article at www.ipm.ucdavis.edu

UC IPM Makes It Happen

IPM advisor promotes IPM practices in San Diego

Many homeowners use too much pesticide and fertilizer that can end up in our lakes, beaches, and bays when it rains or when they overwater. To generate awareness about this issue, Project Clean Water was created in July 2000 and offers people in the San Diego region a broad forum to explore water quality issues.

The project is comprised of a policy advisory committee with technical advisory committees for education, watershed protection, and legislation and regulation.

UC IPM Advisor Cheryl Wilen is working with the Healthy Garden—Healthy Home component of the project to educate San Diego County residents about how to improve their water resources.

As part of this effort, a team of 25 UCCE San Diego County master gardeners has undergone extensive IPM training to provide outreach to the San Diego community. Master gardeners offer IPM workshops on such topics as irrigation, lawn management, and plant selection. They also staff a master gardener hotline to answer home gardening and pest management questions. Other components of this project include training of retail nursery staff and participation in community events.

>>> Read the article at www.ipm.ucdavis.edu

Pesticide use trends and educational strategies for urban pest managers

Pesticide contamination of urban creeks, estuaries, and other waterways is an increasing concern in California. A recently released report by UC IPM scientists Cheryl Wilen and Mary Louise Flint, along with IPM graduate student Nila Kreidich, looks at pesticide use trends and educational opportunities for professionals in urban areas who apply pesticides that may contribute to environmental problems. The study complements earlier studies by Cheryl and Mary Louise that investigated pesticide use and attitudes among California residents.

The study, funded by the California Department of Pesticide Regulation (DPR), took a comprehensive look at user groups in three California counties: Orange, Sacramento, and San Diego. Groups studied included licensed professional applicators, who must report pesticide use to DPR through its use reporting system, as well as several other groups ranging from school employees, employees of private businesses, and unlicensed gardeners, whose use of pesticides is not well documented.

Investigators found significant differences between pesticide use in northern and southern California and also identified shifts in types of chemicals used in recent years. Educational opportunities varied among user groups. While licensed professionals have substantial educational resources available, unlicensed users of pesticides are difficult to reach. Recommended outreach strategies include consumer education, innovative educational materials, adoption of IPM policies, point-of-purchase education, and IPM certification programs.

>>> Read the article and the report at www.ipm.ucdavis.edu

UC IPM Makes It Happen

IPM advisor coordinates worker protection safety training in Kern County

High levels of pesticide exposure incidents in Kern and other southern San Joaquin Valley counties prompted the U.S. Environmental Protection Agency (EPA) to award a $50,000, two-year grant to UC IPM Advisor David Haviland to provide worker protection training to farmers and farm workers in Kern County.

Photo by David Haviland

Primarily, these incidents have been the result of drift from ground and aerial applications of insecticides or the off-site movement of fumigants.

The project is a collaborative effort of the Kern County UCCE, Kern County Agricultural Commissioner's office, and the UC Statewide IPM Program.

>>> Read the article at www.ipm.ucdavis.edu

Herbicide-resistant horseweed found in the south Central Valley


Photo by Anil Shrestha

Anil Shrestha, UC IPM weed ecologist, and Kurt Hembree, UCCE weed management farm advisor, both based in Fresno County, have confirmed the existence of a glyphosate-resistant horseweed biotype in the south Central Valley. This is the first confirmation of glyphosate-resistant horseweed in California.

Glyphosate is the active ingredient in several herbicides registered for use in California. The most common brand is Roundup. According to the California Department of Pesticide Regulation, 5.7 million pounds of glyphosate were used by the agricultural industry in 2003.

>>> Read the article at www.ipm.ucdavis.edu

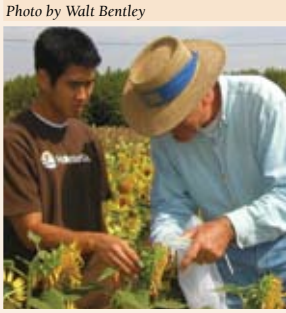
Researcher grows sunflowers to protect peaches from pest

If IPM Advisor Walt Bentley has his way, sunflowers will offer a ray of hope in the battle against the oriental fruit moth by fostering its natural enemies.

The oriental fruit moth is one of the most important pests of peaches and nectarines in the world. The female moth lays eggs on the fruit, and the eggs hatch into larvae which immediately attack the center of the fruit and feed around the pit, making the fruit unfit to eat.

>>> Read the article at www.ipm.ucdavis.edu

Photo by Walt Bentley



Lee Martin, retired staff research associate, UC Davis, and Matthew Takeda, a student assistant, are part of a team of researchers using sunflowers to fight oriental fruit moth.

Researcher finds ways to control invasive pests that threaten marine organisms

Many non-native species inhabit California's coastal waters, posing a threat to aquatic ecosystems.

With funding from the UC Exotic/Invasive Pests and Diseases Research Program, ecologist Ted Grosholz conducted research on exotic invasive pests of marine organisms and found ways to increase native oysters without increasing European green crabs to damaging levels. In a separate research project, Ted found a way to destroy a serious pest of abalone.

>>> Read the article at www.ipm.ucdavis.edu

University of California joins alliance to protect popular flower

UC IPM has teamed up with growers, ornamental plant organizations, and industry personnel to develop IPM strategies to protect a $300 million cut flower industry in California.

California is our country's largest producer of gerbera flowers, one of the most popular ornamental flowers in the world with more than 200 varieties. Gerbera growers often spray pesticides to control pests such as leafminers, whiteflies, and thrips.

Photo by Jack Kelly Clark

With funding from UC IPM and other organizations in the Gerbera Pest Management Alliance (GPMA), researchers are investigating ways to improve the timing for releasing natural enemies, integrating biological control, and using new reduced-risk pesticides to control destructive pests. A key concern is to determine how many pests are present and the number of pests it takes to impact crop yields so that growers can skip treatments when they are unnecessary.

>>> Read the article at www.ipm.ucdavis.edu

UC Exotic/Invasive Pests and Diseases Research Program

Summaries of research project reports are online at the UC IPM Web site.

The UC Exotic/Invasive Pests and Diseases Research Program is funded through USDA-CSREES. The review committees approved $1.8 million in funding for 18 new projects from the 2005-2008 USDA grant. This brings the number of projects sponsored by the program to 82, for $7.3 million.

Read about the current research projects in the 2005 Exotic/Invasive Pests and Diseases Research Program Annual Report at www.ipm.ucdavis.edu

UC IPM Competitive Grants Program

Summaries of research project reports are online at the UC IPM Web site.

UC IPM has brought back to life its Competitive Research Grants Program for 2006-07 funding. The program sought proposals, due Dec. 14, 2006, in the five traditional IPM research areas, plus air and water quality. Through an arrangement with ANR, savings from other parts of the IPM program will be added to the recently reduced research budget to allow for a fully-funded program for the next few years.

New Projects for 2005-06

Air and Water Quality

Using nematode resistant carrots, an alternative to soil fumigation, to reduce VOCs from fumigant pesticide emissions.
P. A. Roberts, Nematology, UC Riverside (Year 1 of 3)

Investigating the influence of sub-lethal heating and soil moisture components on microbial colonization of weed seeds and non-emerged seedlings.
J. J. Stapleton, UC IPM, Kearney Agricultural Center (Year 1 of 1)

Refining management of late-season insect pests of cotton to mitigate VOCs and protect lint quality.
L. D. Godfrey, Entomology, UC Davis (Year 1 of 3)

Developing a predictive model for risk assessment of cavity spot of carrots.
R. M. Davis, Plant Pathology, UC Davis (Year 1 of 1)

Microbial analysis of walnut replant suppression.
J. O. Becker, Nematology, and J. Borneman, Plant Pathology, UC Riverside (Year 1 of 1)

UC IPM Makes It Happen

Training

- **Master gardener training.** More than 60 master gardeners and master gardener coordinators, representing 26 California counties, learned how to use video presentations on ants and weeds and gained hands-on experience working with various ant and weed management activities.

- **Retail education day.** UC IPM Education and Publications staff participated in and sponsored the 2005 UCCE/California Association of Nurseries and Garden Centers' "Healthy Landscapes Retail Education Day."

- **IPM for schools.** UC IPM participated in a one-day training workshop sponsored by the California Department of Pesticide Regulation School IPM program at Oroville High School in March 2005.

- **NRCS staff training.** UC IPM sponsored two, two-day training programs for more than 66 NRCS staff in November and December.

- **Weed school.** Nearly 70 people attended the "Central Valley Weed School 2005," sponsored by UC IPM, UCCE Fresno, and UC Kearney Agricultural Center in July.

- **Vine mealybug identification training.** Salvador Gil and other vineyard supervisors learned how to identify vine mealybugs under a microscope at a training workshop conducted by UC IPM in Sonoma.

Photo by Stephanie Klunk

- **Water quality training.** UC IPM Advisor Phil Phillips gave five IPM presentations on water quality to nearly 350 growers this year.

>>> Read the articles at www.ipm.ucdavis.edu

Photo by Stephanie Klunk

Master gardener training

From left: Master gardeners Ann Beinhorn, Placer County; Yvonne Savio, Los Angeles County; Charlotte Bolinger, Nevada County; and Kathryn Coleman, Napa County, examine various mulches to be used to control weed infestations during master gardener train-the-trainer instruction in weed management conducted by the UC IPM Program.

About the UC IPM Program

The University of California Statewide IPM Program was established in 1979 to develop and promote the use of integrated, ecologically sound pest management programs in California. It sponsors activities throughout California.

UC IPM Highlights is an annual publication of the University of California Statewide IPM Program. Edited by Stephanie Klunk; design and production by Repro Graphics. For more copies, contact ipmig@ucdavis.edu.