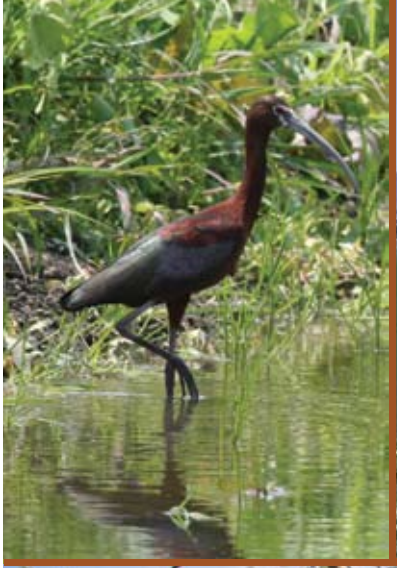


2008 Annual Report

Western Integrated Pest Management Center

WIPMC

Director's Comments

This is the fourth annual report of the Western Integrated Pest Management (IPM) Center. During the past year the Center has received continuation funding for the second year of our current four year grant; taken on the management of the Legume *ipm*PIPE (Pest Information Platform for Extension and Education) for state monitoring programs; continued to manage the Western Region IPM Grants Program; funded research and extension projects, work groups, Pest Management Strategic Plans, and information networks; and participated in international, national, and local meetings, workshops, and symposia.

The Western IPM Center is one of four centers in the United States. Each center is unique in the issues it addresses, but all follow the overarching guidance of the National Road Map for IPM, which identifies integrated pest management goals for agricultural, urban, and natural systems. The Road Map is available at ***http://www.ipmcenters.org/IPMRoadMap.pdf***. The goal of the National IPM Program is to improve the economic benefits of adopting IPM practices and to reduce potential risks to human health and the environment caused by the pests themselves or by the use of pest management practices. The Western IPM Center, through the guidance of its Advisory and Steering Committees, has structured all of its programs to follow the Road Map, and it reports the impacts of its funded projects.

Funding provided to the Western IPM Center comes primarily from the United States Department of Agriculture, Cooperative State Research, Education, and Extension Service (USDA-CSREES). This funding is used to support Center activities and our programs.

Information Networks. Information networks at the state or multistate level provide needed information about pest management needs and tactics at the local level. These networks respond to information requests from USDA and USEPA. Coordination of these requests often occurs via regional comment coordinators. These networks are the local component of the Western IPM Center.

Pest Management Strategic Plans (PMSPs). Regional staff, along with growers, crop consultants, industry groups, and university researchers, develop Pest Management Strategic Plans. These documents are used by industry and by state and federal authorities as they try to understand pest management uses and needs in agricultural settings.

Grants. As research and education needs are identified through the work groups and other stakeholders, the Western IPM Center is able to provide some funding via annual grant programs and through small startup grants. The small startup grants can be quickly funded to address newly emerging issues, such as a disease or other pest outbreak. Western IPM Issues grants focus on problems identified by stakeholders, work groups, PMSPs, or other documents. The Issues grants may be research, extension, or a combination of both.

Work Groups. Focused multi-state work groups are funded to address particular issues, such as pesticide resistance management, urban IPM, weather modeling and pest forecasting, and other topics. These work groups have been enormously successful in leveraging other funds to address issues identified as important in the West. Several large grants have been obtained by work group members as a result of the small amount of support provided by the Western IPM Center.

Advisory and Steering Committees

Two standing committees guide the Center. The Advisory Committee provides vision and guidance. Its members represent a wide range of stakeholders that link the IPM Center to stakeholder needs and priorities for pest management programs in the West. These advisors, integral to IPM Center outreach, promote awareness of the IPM Center's resources to their own constituencies and beyond. The Steering Committee gathers input from stakeholders (including the Advisory Committee), determines broad policy goals and priorities, recommends Center budgets, and provides direction for timely and effective Western IPM Center management.

In the pages of this report we highlight some of the projects, the people, and the impacts that have made the Western IPM Center a success.

Cover photos by Rick Melnicoe

Highlights of WIPMC Grants Programs

The following highlights of WIPMC grants programs show the breadth of projects funded and the impacts made to improve the economic benefits of adopting IPM practices and to reduce potential risks to human health and the environment caused by the pests themselves or by the use of pest management practices.

Determination of Alternatives to Current Pesticides for Controlling Wireworms

Principal Investigators: Juan Alvarez, University of Idaho; Thomas Kuhar, Virginia Polytechnic Institute and State University

(Photo by Juan M. Alvarez)

Summary: Potato is the most important vegetable in the United States and the fourth most important world crop (after rice, wheat, and corn). Wireworms (Coleoptera: Elateridae), the immature stage of click beetles, are the most significant soil-dwelling pest of potatoes, feeding on potato seed pieces and burrowing into developing tubers. U.S. losses total millions of dollars annually. Growers depend on preventive soil insecticide treatments, using the few registered insecticides (all organophosphates or carbamates) with only moderate success. EPA, in the reregistration process, could eventually cancel the use of some or all of these insecticides on potatoes. The study's objectives were to (1) compare the efficacy and economic feasibility of new and non-registered insecticide chemistries with those of the currently used organophosphates; (2) optimize control strategies by determining the timing of wireworm peak activity and the feasibility of a novel baiting method to predict wireworm infestations and related tuber damage; and (3) disseminate research results to potato growers in the Pacific Northwest and mid-Atlantic regions.

Results: Researchers discovered that of all chemistries evaluated, fipronil, an insecticide not labeled for potatoes, consistently provided the lowest number of burrow holes per tuber and the lowest percentage of affected tubers. This confirmed results from previous efficacy trials conducted by the researchers. Because of these results, fipronil (Regent 4 SC) now has a supplemental label registered for in-furrow use for wireworm on potatoes. Researchers also determined that most tuber damage occurred after mid-June, indicating that insecticides are applied prematurely (at planting or preplant). This could be why insecticides used against wireworms have been only partially effective at reducing damage.

Impacts: Project results on the timing of peak wireworm activity could impact registration of new materials for wireworm control, will help chemical companies and growers determine the best application timing for new control measures, and will allow growers to know how long preplant chemicals need to last in the field to prevent damage. The registration of fipronil (Regent), which is more effective than currently registered insecticides, benefits all potato growers affected by this insect pest in the United States.

Environment-Friendly Strategies for Management of Mealybugs, Ants, Ampeloviruses, and Mealybug Wilt of Pineapple

P.I.s: John Hu and Diane Sether, University of Hawaii, Honolulu

(Photo by Diane Sether)

Summary: Pineapples are Hawaii's leading agricultural commodity and have a two- to three-fruit crop cycle. The first fruiting is referred to as the "plant crop." The subsequent fruitings are referred to as "ratoon crops." Ratoons are shoots that grow from the plant's roots. The most economically important insect pests of pineapple are pineapple mealybugs. Grey pineapple mealybugs (GPM) are vectors of the pineapple mealybug wilt associated viruses (PMWaV), a complex of several ampeloviruses. PMWaVs reduce pineapple fruit yield, and PMWaV-2, along with mealybugs, plays a role in the devastating disease mealybug wilt of pineapple (MWP). Big-headed ants frequently tend and defend mealybug colonies in pineapple, leading to the establishment of large, thriving mealybug colonies, increased spread of ampeloviruses, and MWP outbreaks. Diazinon, an organophosphate, is one of the few insecticides registered for use on pineapple for mealybug control, and the pineapple industry has historically been its largest user in Hawaii. The researchers previously found that the use of Amdro Pro ant bait, applied as a broadcast or in bait stations in the plant crop, correlated with reduced spreading of PMWaVs. With this control of ants in the plant crop, diazinon applications were not needed until shortly before harvest.

In the most recent phase of the study, researchers focused on the ratoon and fallow periods of the pineapple crop, evaluating alternative, environment-friendly approaches to control GPM, associated ant species, the spread of the PMWaVs, and subsequent MWP. The infrastructure of the pineapple field and canopy becomes more complex in the ratoon crop cycle. This potentially affects ant foraging patterns and mealybug population development, possibly requiring changes in control methodologies. The objective of this phase of the study was to demonstrate and compare alternative control strategies for minimizing incidences of virus spread and MWP in the ratoon and fallow periods of the pineapple crop.

Results: In-field use of Amdro Pro ant bait correlated with reductions in the spread of PMWaVs in the ratoon crop cycle of pineapple. Although PMWaVs can be spread by mealybugs in the absence of ants, the presence of ants correlated with greater increases in virus incidence. When ants were present, the more rapidly the ants were eliminated the less virus incidence increased. In the ratoon crops, broadcast applications of ant bait clearly provided more rapid control than bait station applications. In addition, ants were eliminated more rapidly in the fallow period by in-field broadcast applications of bait than by peripheral applications in bait stations.

Impacts: The application of diazinon during the growth stage of the pineapple plant crop was eliminated without increase in virus incidence if ants were controlled. This reduces the risks associated with drift and the impact on nontarget organisms. The discovery that in-field use of ant bait correlated with reductions in the spread of PMWaVs in the plant and ratoon crops has led the pineapple industry of Hawaii to develop IPM strategies incorporating ant control as a component for disease and virus management. In addition, growers from Malaysia and the Philippines have shown interest in incorporating ant control into their own pineapple production programs. The outcomes of this study and demonstration of the applied knowledge were shared with pineapple growers, researchers, and professionals responsible for pineapple production worldwide. The adoption of lower-risk or lower-impact strategies can provide global benefits: a reduction in diazinon application during the growth stage of the pineapple plant crop on a worldwide basis would represent thousands of pounds of organophosphate not used.

Predator Control of Rodent Pests

P.I.: Jackie Hastings, Polk Soil and Water Conservation District, Dallas, Oregon

(Photo by Lisa Reiley, Polk Soil and Water Conservation District)

Summary: Rodent damage to agricultural crops has been identified as a significant resource problem. The use of rodenticides is an issue of great concern to agricultural producers, private landowners, and other natural resource managers. The rodenticide most commonly used, zinc phosphide (ZP), has application method and timing restrictions, because migrating birds grazing in farm fields die after eating ZP pellets. This problem is one of many factors that have led agriculturalists to call for alternate options for managing rodent pests. The project's objectives were to (1) promote the widespread acceptance and implementation of biological control to manage rodent pests; (2) cooperate with stakeholders to design a biological control system for rodent pests by utilizing and augmenting natural rodent predators; and (3) reduce rodent pest damage and commercial rodenticide use.

Results: The Polk Soil and Water Conservation District's (SWCD) Vole Control Program began in January 2006. The original goal of the project was to enroll 21 landowners in the program, but the response was much greater than anticipated, with a total participation of 37 enrollees. Upon enrollment, participants completed a detailed history of their control methods, including timing, frequency, amount, and estimated effectiveness, as well as their estimate of crop damage and losses from rodents. After landowners turned in their applications and were approved, technicians created a pest management plan for each participant. Each landowner installed a combination of kestrel nest boxes, barn owl nest boxes, and raptor perches on their property. A total of 1,450 acres were enrolled, with 87 kestrel boxes, 98 owl boxes, and 194 raptor perches. Use of the perches was higher than anticipated, with 90–100% seen in use. American Kestrels, Red-tailed Hawks, and Northern Harriers were most commonly seen using the perches. Landowners reported seeing a reduction in new vole holes around areas with perches. Initial observations of use of the nesting boxes has been positive. Barn Owl boxes installed for an entire nesting season or longer had a 28% occupation rate. Kestrel boxes installed for an entire nesting season or longer had a 43% occupation rate. All participants had previous rodent damage. Total damage reported after one year of participation was much less than at the time of enrollment. Of the 17 participants in the program at least a year, 11 reported there was no damage for the reporting year, and six reported there was still damage. Two of these landowners said damage was greatly reduced since joining the program. Twenty of the participants have not been in the program for at least a year, so it is too early to tell what results they will have. (Reports are taken annually.)

Impacts: One of the project's goals was to reduce chemical dependency, and this has been very successful. Out of the 17 participants in the program for at least a year, seven reported no use of traps, bait, or chemical control (methods they had used prior to enrolling in the program). The other ten reported reduced use of these methods. The program's other 20 participants will begin reporting in 2009, but their early feedback has been very positive. Those with perches reported seeing frequent use by birds. Program participants have been so pleased with the results they are encouraging their neighbors to join the program. The project has also been shared with other entities and has received great interest. Participant reports clearly show that use of chemicals for rodent control has been reduced, and natural predation has become an alternative form of pest control. Due to the program's success, the Polk SWCD plans to create an updated version of the program, recruiting more participants and conducting further outreach and education on IPM.

Reduced Fungicide Use for Hop Downy Mildew Management

P.I.s: Cynthia Ocamb, Oregon State University; David Gent, USDA-Agricultural Research Service and Oregon State University

(Photo by David H. Gent)

Summary: Hop (*Humulus lupulus*) is an economically important crop in the western United States. The region produces nearly the entire U.S. supply and greater than 30% of the world supply of hops. The cones of the female hop plants are used almost exclusively for imparting flavor and aroma to beer. Because of the high value and input costs associated with the hand labor of hop production, the crop is managed intensively for diseases and other pests to maximize yields and quality. Hop downy mildew, caused by *Pseudoperonospora humuli*, is one of the oldest and most devastating diseases of hop and remains a serious threat to sustainable and profitable hop production. Current management relies heavily upon chemical inputs, with some growers using as many as 10 fungicide applications per season to suppress disease. These applications are made on a calendar basis because of limited cultural and biological control tactics. The researchers hypothesized that by initiating fungicide applications based on an effective growing degree-day model and timing necessary applications according to a downy mildew forecasting model, hop producers could provide disease suppression similar to that of the standard grower spray program, but with fewer applications. To that end, the project's objective was to validate disease forecasting systems for hop downy mildew in the western United States. Disease management strategies that reduce unnecessary fungicide applications are essential to maintain and improve hop production profitability and sustainability, and to ensure environmental stewardship.

Results: This research has shown that at least three, perhaps four to five, fungicide sprays can be eliminated by use of the growing degree-day and infection risk models, without reducing control of the disease.

Impacts: If 50% of the U.S. hop acreage is managed with the aid of this disease forecasting system, 15,000 fewer pounds of fungicide would be applied annually (assuming three sprays were eliminated). This would save producers an estimated $900,000 annually in pesticide and application costs, helping grower profitability and reducing pesticide use and associated environmental impacts. Researchers made five presentations to grower groups during 2005–2007, reaching a total of 675 attendees, and they provided annual technical reports to the hop industry during this same period.

Effective IPM Strategies for Parks Maintenance Staff in the Pacific Northwest

P.I.s: Megan Kemple, Northwest Coalition for Alternatives to Pesticides; Tim Stock, Oregon State University

(Photo by Samantha Chirillo, NCAP)

Summary: In the Pacific Northwest, park landscapes are managed using a combination of cultural and chemical controls. Because of a growing public concern about the health and environmental effects of pesticides, including insecticides and herbicides, there is an increasing interest by parks maintenance staff to control weed and other pest problems without the use of pesticides. Innovative IPM techniques that do not involve the use of pesticides are being implemented by some parks maintenance staff in cities throughout the Pacific Northwest. When this project was developed there was no system for sharing information about effective IPM techniques among parks staff. In order to build upon the previous success of innovative parks departments in managing problem vegetation without herbicides, the project compiled and disseminated this existing information. The overall goal of the project was to reduce human health risks and environmental effects from pesticides used in parks. Specific objectives were to (1) have

Impacts: Special Issues

30 parks maintenance staff from Oregon, Washington, Montana, and California identify their top weed control challenges and then choose five of the top challenges based on overlap and priorities; (2) identify and document at least 10 effective non-herbicidal IPM strategies employed by the collaborating parks maintenance staff that address these top five weed control challenges; and (3) distribute the collected practices and techniques to parks staff throughout the Pacific Northwest.

Results: Researchers compiled information about the non-herbicidal strategies and how they are implemented in a series of four reports entitled *Effective Non-herbicidal Weed Control Strategies Implemented by Parks Staff in the Northwest*, covering turf, tree wells, hardscapes and fence lines, and shrub beds and other landscaped areas. The reports were distributed to parks staff by mail, email, and downloadable PDFs. Oregon Recreation and Parks Association and California Parks and Recreation Society (CPRS) supported the project by publicizing the reports to their members. The strategies were also presented by the National Coalition for Alternatives to Pesticides (NCAP) and parks maintenance staff in a series of five trainings throughout Oregon. A total of 683 pest control operators, including approximately 164 parks staff, attended the trainings.

Impacts: Through this project, NCAP highlighted 63 effective non-herbicidal weed control strategies that are not yet widely adopted by parks staff. Training evaluations submitted by 37 parks staff showed that 84% of respondents gained knowledge about non-herbicidal weed control strategies, and 81% of respondents indicated they had the resources and information needed to implement these new strategies. Report evaluations submitted by 22 parks staff showed that 85% of respondents believed the information will be helpful in reducing pesticide use in the parks they manage. Report evaluations also showed that 61% of parks staff who responded have implemented or intend to implement techniques they learned about in the reports. In addition to the non-herbicidal weed control strategies being implemented, the researchers have built a network of parks maintenance staff who can share resources with each other. This network was created through training sessions provided by parks staff as well as through their participation and collaboration in the reports NCAP published. Contact information for all parks departments involved in the reports was included in each report so that parks staff can easily connect with each other in the future. The connection with CPRS established during the project has resulted in a new collaborative partnership.

*See the Western IPM Center Web site, **http://www.wripmc.org/**, for further details about objectives, progress, and outcomes of WIPMC funded projects.*

Special Issues Projects Yield Results

The Western IPM Center has an ongoing call for proposals to address special IPM issues in the West. Special issues funding may be requested to convene groups of people to address emerging issues such as new pests, environmental concerns, development of proposals for larger grants based on documented stakeholder needs, or development of Pest Alerts. The Western IPM Center has funded several projects under this program this year. The impacts of some of these small grants (up to $5,000 each) are summarized below:

- Series of education workshops developed for turfgrass managers in Hawaii. Three one-day workshops held, with participation by golf course superintendents and landscape professionals from throughout the Hawaiian Islands. The workshops promoted use of IPM practices for tropical turfgrass. This was an identified stakeholder need at the Hawaii/Guam Turfgrass PMSP workshop.
- Research into feasibility of using acoustic methods to detect adult coconut rhinoceros beetles boring into the crowns of coconut trees. Coconut rhinoceros beetle is an emerging pest on Guam (infestation documented September, 2007). Acoustic detection may allow protection of individual high-value trees by physical removal of beetles or spot treatment with insecticide. Acoustic detection instrumentation may also be deployed as monitoring devices in an established eradication program.
- Support provided to evaluate decline of black walnut trees in the western United States. A successful proposal developed by this research team secured $79,931 for a two-year project to (1) understand the biology and interactions between the walnut twig beetle (*Pityophthorus juglandis*) and Geosmithia sp., a fungus associated with the disease complex being investigated; (2) determine whether Geosmithia is a natural associate of *P. juglandis* within its native range; and (3) determine relative susceptibility to canker formation by Geosmithia of North American and exotic Juglans species as well as other members of the Juglandaceae.
- Dialogue promoted between researchers and pest managers to identify future research needs for effective policy and pest management decision making.

(Photo by Rick Melnicoe)

Addressing Western IPM Issues

Newly Funded Projects

The Western IPM Center funded four "Addressing Western IPM Issues" projects, totaling $279,260 in the fall of 2007.

The projects:

- Process-Based Modeling of Ecological Thresholds: Managing *Bromus tectorum*-Invaded Communities
  Principal Investigators: Cynthia Brown, Michael Coughenour, and Roy Roath, Colorado State University
- Epidemiology and Integrated Management of the Cucurbit Yellow Stunting Disorder Virus in Sonoran Desert Cucurbits
  PI: Judith Brown, University of Arizona
- Expansion of the Online High Plains IPM Guide to Include Agricultural, Rangeland, and Wildland Weed Recommendations
  PIs: Fabian Menalled, Will Lanier, and Mary Burrows, Montana State University
- Improving Potato Tuberworm Management with Cultural Practices
  PIs: Silvia Rondon and George Clough, Oregon State University

(Photo by Rick Melnicoe)

Further information is online at ***http://www.wripmc.org/***.

Collaborations

Western Region Sustainable Agriculture Research and Education Sub-Regional Conferences

The Western Region Sustainable Agriculture Research and Education (WSARE) program is sponsoring a series of sub-regional conferences throughout the West (including the Pacific territories and protectorates). Proposals were solicited via competitive RFAs with the following objectives: (a) to identify and prioritize emerging and unmet research and education needs in sustainable food, fiber, and energy systems, and (b) to increase stakeholder and policyholder awareness of the accomplishments of WSARE and its projects. Besides providing the majority of the funding for these conferences, WSARE is providing technical assistance for the meetings and a common facilitator, Dr. Jerry DeWitt, Iowa State University and former National SARE Director.

Rick Melnicoe is a member of the WSARE Administrative Council that approved the concept and development of these sub-regional conferences. Rick has attended all but one of the conferences. He whole-heartedly agrees with others who have attended the meetings that the conferences are a superb way to extend information about WSARE and, more importantly, to find out what issues are important to the members of the regional community. As the Director of the Western IPM Center, Rick has listened to stakeholders talk about their needs, not only from the WSARE perspective, but from IPM and other points of view. This information is proving invaluable to the Center's knowledge of issues in the region.

(Photo by Rick Melnicoe)

Conferences have been held in Guam; Albuquerque, New Mexico; Kona, Hawaii; and Cheyenne, Wyoming. Future conferences are scheduled for Spokane, Washington and California.

Western Region IPM and Water Quality

The Western IPM Center has taken the lead in getting IPM Coordinators and the Regional Water Quality Programs (Regions 9 and 10) together by hosting two conference calls. It was agreed that the focus of this collaborative effort would be identifying the areas where the Regional Water Quality and IPM Programs in the West could work together. The planning committee has just begun to develop preliminary plans for a joint Regional Water Quality and IPM symposium in 2010. One of the main focuses of this collaboration is to identify measurements common to the objectives of both programs.

National IPM Evaluation Group (NIPMEG) Subcommittee

NIPMEG's National IPM Evaluation Subcommittee has finalized 16 IPM Logic Models. These logic models, developed by the subcommittee, have been sent out for peer review to IPM Coordinators, researchers, and other specialists. The models are an IPM evaluation tool, using as examples the objectives stated in the National Roadmap for IPM. The areas identified in the Roadmap are Production Agriculture, Natural Resources, and Residential and Public Areas. There are four Production Agriculture, four Natural Resources, and eight Residential and Public Areas logic models. The models will be available on the national IPM.gov Web site (***www.ipm.gov***) in the near future. This has been a huge effort over the last three years that evolved with participation by Regional EPA Strategic Agricultural Initiative Programs, USEPA, Regional IPM Centers, USDA/CSREES, USDA National Sustainable Agriculture Research and Education Program, and American Farmland Trust.

(Photo by Rick Melnicoe)

Legume *ipm*PIPE

The Western IPM Center managed the funding of subcontracts to 23 states for the Legume *ipm*PIPE during 2008.

The Legume *ipm*PIPE (PIPE = Pest Information Platform for Extension and Education) consists of a network of approximately 150 sentinel plots in 28 states, provinces, and districts of the United States, Canada, and Mexico. It is a spinoff from the successful Soybean *ipm*PIPE, which has monitored the progress of, and provided timely management strategies for, soybean rust and soybean aphid on soybean in recent years. The Legume *ipm*PIPE monitors for soybean rust and soybean aphid, but more importantly in the West, for other diseases and insect pests found on legumes. Funding was provided through the USDA Risk Management Agency (RMA) and other sources, including legume checkoff programs, agricultural experiment stations, and extension projects.

During 2008, a team of university, USDA, and industry specialists monitored and reported on priority disease and insect pests in critical legume crops grown across North America. The PIPE enhances the role of IPM specialists by providing near real-time access to legume pest observations, model output, pest management information, and communication tools to support pest management decision making by growers during the growing season. No unusual or serious pest outbreaks were noted.

The 2008 Legume *ipm*PIPE Web site includes a series of menus, maps, reports, illustrations, and management links for topics that cover Legume Crops, Diseases and Insect Pests, Image Gallery—e.g., common beans (in cooperation with the Bugwood Network), and other resources. State specialists provided commentary on disease and pest reports. The Web address for Legume *ipm*PIPE is ***http://legume.ipmpipe.org***.

Continued funding from the RMA will not be available in 2009. Other sources of funding are being sought.

Regional Coordinators for the project are Marie Langham, Eastern Region, ***marie_langham@sdstate.edu***, (605) 688-5539 and Howard Schwartz, Western Region, ***howard.schwartz@colostate.edu***, (970) 491-6987.

Information Networks Solve Problems

Activities of the Western IPM Center's information networks have resulted in everything from added worker and environmental protection to retained pesticide uses for specialty crops. Each information network is comprised of many people working on a variety of issues. The main functions of information networks are to:

- serve as resources for information about the importance of pesticides and other pest management tactics in local production systems and urban and natural systems covered by the network
- respond to information requests from USDA and USEPA
- collaborate and/or coordinate with a diverse group of stakeholders, including extension IPM coordinators
- identify critical issues
- aid in identifying appropriate individuals to whom IPM tactics use surveys, crop profiles, and Pest Management Strategic Plans (PMSPs) should be addressed.

The network participants are closely involved in many activities directly related to the mission and goals of the Western IPM Center. They serve as members of work groups; organize or assist on PMSP teams; and participate in peripheral programs such as the Interregional Research Project No. 4 (IR-4), water quality, Natural Resources Conservation Service, sustainable agriculture, and many others.

This involvement provides avenues for the Western IPM Center to understand and address stakeholder needs. Followup activities from PMSPs have resulted in several research projects, IPM manuals, pesticide registrations, and improved IPM in many crops.

Work Groups

Western IPM Center Sponsors Seven Work Groups


(Photo by Rick Melnicoe)

Western IPM Center funding currently supports seven issue-based work groups involving:

- Crop insect losses and impact assessment in California and Arizona cotton, melon, and other crops
  *PI: Al Fournier, University of Arizona, **fournier@ag.arizona.edu***
- Western region school IPM implementation and assessment
  *PI: Dawn Gouge, University of Arizona, **dhgouge@ag.arizona.edu***
- Technical work group that discusses and refines standards and protocols for the collection, analysis, and Web delivery of weather data for IPM purposes
  *PI: Walt Mahaffee, Oregon State University, **mahaffew@science.oregonstate.edu***
- Pacific Northwest coalition that collaborates on a multitude of issues
  *PI: Catherine Daniels, Washington State University, **cdaniels@wsu.edu***
- Group to organize a workshop to prepare a comprehensive research proposal to develop low-impact IPM strategies to control pest ants in urban environments
  *PI: Michael Rust, UC Riverside, **michael.rust@ucr.edu***
- Western conservation biological control work group to foster a collaborative approach of communication, research, and outreach to preserve crop pollination by native pollinators and management of pests by predators, parasitoids, and pathogens in forest rangeland, farms, and gardens in the western region
  *PI: Gwendolyn Ellen, Oregon State University, **gwendolyn@science.oregonstate.edu***
- An IPM for Spanish-speaking landscape workers work group
  *PI: Rebecca Hines, Washington State University, **hinesre@wsu.edu***

Center Staff


Rick Melnicoe


Tom Holtzer


Linda Herbst


Diane Clarke

Rick Melnicoe, active in pest management issues for more than 30 years, serves as the director of the Western IPM Center (WIPMC), headquartered at Meyer Hall, University of California, Davis.

Co-director is entomologist Tom Holtzer of Colorado State University, Fort Collins, and associate director is Linda Herbst of UC Davis. Diane Clarke of UC Davis serves as writer/editor.

The WIPMC enhances communication between federal and state IPM programs in the western United States: Alaska, Arizona, California, Colorado, Hawaii and the Pacific territories, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

The WIPMC serves as an IPM information network, designed to quickly respond to information needs of the public and private sectors.

Contracted WIPMC staff includes regional comment coordinators, a regional Pest Management Strategic Plan coordinator, and an IPM regional grants manager, located throughout the region.

Impacts

Integrated Pest Management of Ants of Urban Importance in the Western Region
Research and extension priorities for ants of urban importance throughout the Western Region were identified at a workshop held in August. A comprehensive research proposal is being prepared that focuses on developing IPM strategies that reduce the amount of insecticides used to control pest ants in urban environments, thereby reducing or eliminating potential insecticide runoff into watersheds and adverse effects on nontarget animals and other organisms.

Western Region School IPM Implementation and Assessment
In the first year of this two-year, multi-state work group, new members have been added, increasing the group's capacity to address the region's IPM in schools information needs. Excellent relationships with multiple state and federal government agencies have facilitated improved measurement of IPM programs. The group has been involved in implementing a coordinated inventory of school IPM programs and resources throughout the region that will serve as baseline data for measuring progress in school IPM implementation.

Western IPM Center Work Group on Weather Systems
Collaborative research that was a direct result of work group meetings has resulted in the implementation of interpolated weather forecasts (e.g. ***http://pnwpest.org/cgi-bin/risk_model/risk_models***), including an initial prototype "virtual weather station" (VWS) system that uses interpolated data. Since the group's inception, members have secured more than $1 million in funding for research and implementation activities. The group is recognized as a leader in the interpolation and delivery of weather, forecast, and pest model data. This group, at the request of researchers in the North Central Region, collaborated in the development of a similar work group in their region.

PMSP Impacts

Potato Production

Wireworms are a major pest of potatoes, causing field crop losses and reduction in tuber quality. The Pacific Northwest Potato Production Pest Management Strategic Plan (PMSP), first published in August 2002 and then revised in July 2007, listed wireworms as a critical pest. The document cited research into new chemistries for wireworm control as a priority.

The WIPMC's "Addressing Western IPM Issues" grant program funded research into alternative control measures for this pest, since the most effective registered pesticide for wireworm control, ethoprop, is an organophosphate and subject to regulatory concerns. As a result of this research (see "Highlights") the USEPA registered a supplemental label for Regent 4 SC (fipronil) for use to control wireworms in potatoes. This provides a lower risk alternative to ethoprop.

School IPM 2015

One of the most interesting and complex PMSPs undertaken so far was completed in November. *School IPM 2015: A Strategic Plan for Integrated Pest Management in Schools in the United States* was spearheaded by Tom Green, IPM Institute, with funding from all four Regional IPM Centers and USDA-CSREES. The initial concept was developed by Dr. Dawn Gouge, urban entomologist, University of Arizona, after listening to a presentation about PMSPs given by Rick Melnicoe, director of the Western IPM Center. A national work group put together the initial draft and worked with many others to develop this document.

(Photo by Rick Melnicoe)

Four regional school IPM work groups have been funded by the IPM Centers as a result of the PMSP workshop. Here are a few highlights of the additional progress that has been made relating to school IPM, reported by Tom Green:

A national meeting took place to train participants on how to influence IPM adoption in schools. The meeting was held in Denver in October, hosted and funded by USEPA Region 8 and led by Dawn Gouge, Marc Lame, Indiana University, and Sherry Glick, USEPA.

Several symposia on school IPM have been held at national society meetings over the past year.

Working with the four regions, the IPM Institute secured $250,000 in funding from EPA to implement four new pilots (one in each USDA IPM region) and five self-expanding coalitions. The project summary is posted on the North Central work group Web page, ***http://www.ipminstitute.org/NC_IPMIS_Working_Group/main.htm***.

The IPM Institute has hired a 75% time coordinator to support implementation of the EPA grant and the PMSP.

An additional 17 school and childcare programs have achieved IPM STAR certification. See ***http://www.ipminstitute.org/IPM_Star/ipmstar_schools.htm#School***.

Organic Potato Production

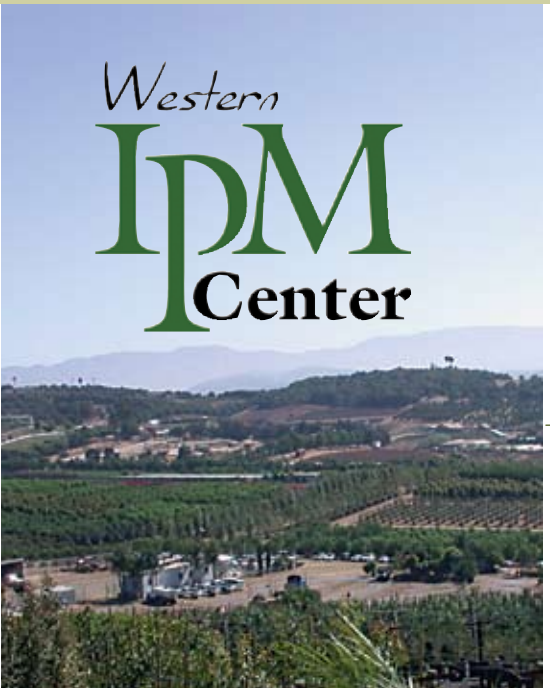
When Pacific Northwest potato growers planned to update the Potato Production PMSP, they wanted to add organic potato production. An increasing number of growers in the region were considering transitioning some of their ground to organic production, having heard of the financial gain and the long-term benefits to soil health. However, because of the differences between organic and conventional growing methods, PMSP work group leaders Ronda Hirnyck, University of Idaho, and Jennifer Miller, Sustainable Agriculture Coordinator at the Northwest Coalition for Alternatives to Pesticides (NCAP), determined a separate plan was needed, along with a separate meeting of farmers and researchers with experience in organic potato production. To reduce the need for pesticides, organic potato farmers rely heavily on preventive methods and a different set of tools to manage pests, including long and diverse rotations, avoiding fields with known pest problems, and others.

(Photo by Jennifer Miller)

The meeting, with organic potato growers and researchers from California, Colorado, Idaho, Oregon, and Washington, convened in January. After studying the issues and hearing from the meeting's attendees, Miller and Hirnyck quickly learned that a pest-by-pest approach was needed and that an organic potato PMSP would require an integrated approach.

The organic farmers identified a number of educational needs during the strategic planning session. To address these needs, Idaho work group participants organized two field days. In September, two Idaho organic potato farmers who had participated in developing the PMSP invited other farmers and agricultural professionals to their fields. Long-time organic potato farmer Fred Brossy of Shoshone, Idaho, spoke about the importance of rotating his crops to deal with nutrient and pest management issues. Kris Taylor of Idaho Falls shared his relatively new methods of organic farming. He had just finished his second year growing organic potatoes.

NCAP partnered with the two organic farmers, as well as the grower organization Potato Growers of Idaho and the potato supplier Potandon Produce, Inc., to hold these field days. These organizations continue to use the information gained through the PMSP process to help potato growers, including at a November workshop in Idaho Falls and in sessions at the University of Idaho's annual Potato Conference in January, 2009.



For more information on the
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