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Pennsylvania Integrated Pest Management Program

PA IPM News

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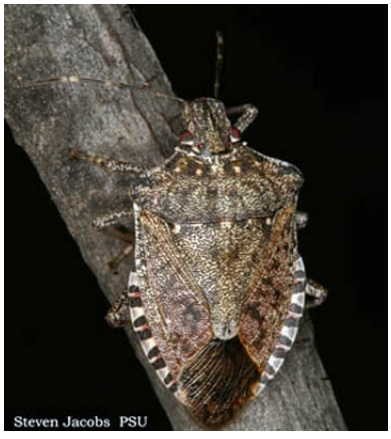
Uninvited Guests: Stink Bugs



Adult stink bug (Image by Steve Jacobs)

The approaching cooler weather means fall is just around the corner, but it can also herald in unwanted pests looking for a warm place to overwinter.

One pest that is invading homes and other buildings in the northeast at an increasing rate is the Brown

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Reducing Health Risks in Public Housing

(Image by Alvaro Leiva/Panos Pictures)

Suppression of asthma triggers such as rodents and cockroaches and the pesticides used to treat them is the focus of a new integrated pest management (IPM) training program to be offered in public housing authorities across the country.

The Northeastern IPM Center project, funded by the Department of Housing and Urban Development through the U.S. Department of Agriculture, will promote IPM to public housing authorities as a low-risk, effective way to reduce pests and pesticide use. IPM is a common sense approach to managing pests that uses knowledge of pests' habits and needs to help residents implement pest prevention tactics for long-term control. Sealing off cracks and crevices where pests can enter and removing food and water are all examples of preventative tactics. In IPM, pesticides are used only as a last resort and they are selected based on their safety to humans and the environment.

Project coordinator Allison Taisey says that one public housing study showed that at least six pesticide products were found in the majority of homes studied—including banned and restricted use products. "Unfortunately, not everyone practices IPM, and many institutions don't have a written pest management policy. That leaves unaware residents thinking they have to deal with their own pest problems."

Many people are also unaware that pests and pesticide use can increase the risk of asthma and even cause it in some cases. "A 2006 study points out that asthma affects over 12 percent of children nationwide, but that number increases to 17 percent of the children in New York City, and 30 percent of the children in Harlem," says Taisey. "There is a correlation between public housing and asthma. In addition to the health consequences, asthma episodes in children result in missed school, medical expenses, and lost time at work for the caregiver. There is a way to take these burdens off already struggling families."

Project partners consulted with the USDA-formed advisory committee to review and refine existing IPM training materials pertinent to public housing. "Educational packets are being developed and will be used during one-day trainings for maintenance staff, managers, and resident leaders in each of the four USDA regions," Taisey explains. "The trainings will emphasize a team-based approach, meaning that project partners, trainers, residents, maintenance staff, supervisors, and pest control companies will share in supporting a success-

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New Faculty Strengthens Honey Bee Research

Christina Grozinger inspects honey bees. (Image by Daniel Kim, NCSU)

Discovering how honey bees and other social insects behave and interact with one another will be the focus of a new faculty member's research in the Department of Entomology in Penn State's College of Agricultural Sciences.

Dr. Christina Grozinger, currently an assistant professor in insect genomics at North Carolina State University, will be joining the department in December, bringing with her a wealth of expertise in the field of insect genomics. Genomics is an emerging science that allows researchers to study thousands of genes (their sequence, expression, function) simultaneously. Grozinger's research focuses on genomic analysis of chemical communication in honey bees and other social insect species. Chemical communication in honey bees is important for many aspects of colony organization and necessary for having healthy and productive colonies.

"I study the molecular and physiological basis of chemical communication, both in terms of production of the chemical signal and responsiveness of the receiving insect," Grozinger explains. "I'm also using functional genomics studies to identify and characterize the genes that regulate behavior, focusing on pheromone-mediated behavior and reproduction."

Grozinger's research is of particular importance as honey bee colonies continue to die the across the country from a syndrome called Colony Collapse Disorder. "Grozinger's honey bee research solidifies our department's commitment in taking a major role in finding a solution to the decline of the nation's honey bees and other pollinators, which are critical to the production of $15 billion worth of crops in the United States," says department head Gary Felton. Grozinger will join several faculty and graduate students already researching Colony Collapse Disorder.

Grozinger was working on her Ph.D. in Chemistry and Chemical Biology at Harvard when she became interested in honey bees. "My brother started keeping honey bees as a hobby, and he would tell me fascinating stories about their behavior. It was really amazing and I started to read more about bees," says Grozinger. She decided to use her training in molecular biology in her post-doctoral research to focus on honey bees and study the mechanisms regulating their behavior.

Grozinger's work is paying off, as she was recently named a recipient of the National Science Foundation (NSF) Faculty Early Career Development Award. According to the NSF, the Career Development Award is the most prestigious award in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations. The five-year grant will allow Grozinger to expand her honey bee research to include other species such as bumble bees and paper wasps.

In addition to her research, Grozinger has taught classes related to insect genetics, genomics, neurobiology, behavior and molecular ecology and plans to continue teaching at Penn State. Grozinger says she's excited to be joining the College because of its strong commitment to chemical ecology. "There's so much opportunity for collaboration at Penn State with other researchers, I can't wait to get started," says Grozinger.

For more information on honey bee research at Penn State, visit http://www.ento.psu.edu/HoneyBeeResearch.html.

Crop Disease Management Reports

The 2008 volume of Plant Disease Management Reports (PDMR) is now available.

This online resource was developed to give growers, consultants, pesticide applicators, and extension specialists the latest in disease management information. The latest volume contains more than 560 searchable reports on the effectiveness of fungicides/nematicides, resistant varieties, and other biological controls that defend against diseases of agricultural and horticultural crops.

All volumes of PDMR and its preceding publications, F&N Tests and B&C Tests, contain 5,000-plus reports covering more than 1,500 chemical and biological controls. "Many professionals in agriculture and horticulture depend on PDMR to develop disease management recommendations or make better pest management decisions," said Dan Egel, Ph.D., Extension Plant Pathologist at Purdue University and Editor-in-Chief of Plant Disease Management Reports.

To access the reports, go to http://www.plantmanagementnetwork.org/pdmr.

IPM Profile:

Fruit Growers Work Together to Reduce Pesticides

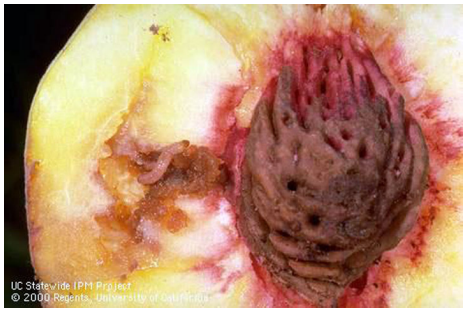
In Pennsylvania, over 400,000 tons of tree fruit such as apples, peaches, cherries and pears are produced each year, with over 50,000 orchards and vineyards spanning the state.

Internal fruit worms such as Oriental fruit moth and codling moth pose a serious economic threat to this valuable industry. According to Jeff Mizer, Penn State extension education in Snyder county, fruit-damaging worms not only reduce marketability of the fruits they infest, but can cause the rejection of entire truckloads of apples at processing plants, which has occurred in Pennsylvania and other states.

"In Snyder County, eleven orchards are working together under a Penn State apple worm monitoring project. The project was previously funded by Penn State and the PA Horticulture Association of Pennsylvania, but starting in 2006 the project was funded by the growers themselves," says Miser. The goals of the project are to develop the grower's insect monitoring skills in order to reduce costs of pesticides and to prevent the rejection of loads of Central Pennsylvania fruit by apple processors.

Insect monitoring skills and other tactics aimed at reducing pesticide use are a part of an integrated pest management, or IPM program. IPM aims to manage pests -- such as insects, diseases, weeds and animals -- by combining physical, biological and chemical tactics that are safe, profitable and environmentally compatible.

"We're educating growers about IPM programs that reduce the use of older, more toxic insecticides and replace them less-toxic versions. We also use pheromones in traps,



Oriental frut moth larva feeding on inside of fruit. (Image by Jack Kelly Clark)

which disrupt mating in several types of moth pests," Miser explains. Pheromones are chemicals produced by insects to communicate with other individuals of their species. Typically, female insects use pheromones to attract males over long distances.

According to Mizer, growers are using trap count information to make decisions for slightly more than 225 acres. "Collectively, they were able to save more than $4,250 on insecticide costs and over $550, approximately $17 per acre in just one growing season. Four growers estimate that the knowledge gleaned enabled them to change pesticide application practices strategically enough to avert financial losses due to apple worm damage. The estimated monetary savings for these four growers alone amounted to over $6,750."

Technical and administrative support is provided by Dr. Greg Krawczyk, senior research associate at Penn State Fruit Research and Extension Center in Biglerville, Pa. "The Lycoming County Extension Association pays the wages of a project assistant to monitor the traps in the Lycoming County Orchard, while six of the orchards pay their own staff to monitor the traps and record data. The total time required per farm per season is at least 25 hours. We estimate that each farm then invests several hundred dollars just in staff time required for monitoring," Mizer explains.

Additionally, cooperators report the weekly monitoring data to Dr. Krawczyk, which is published in the "Fruit Times" monthly newsletter and distributed to the growers in the Central Susquehanna Valley. Through this insect monitoring program, fruit growers have become aware that different orchard blocks have different levels of pest pressure, and, armed with the trap data, they can watch the problem blocks more carefully.

The project is also being supported by the Degenstein Foundation, Cadbury Schweppes Americas Beverages, Knouse Foods Cooperative, the Central Pennsylvania Fruit Growers Association, and the Pennsylvania Higher Education Assistance Agency.

Growers involved in the project are more than pleased with the results. "Too much information is gleaned from the traps to drop the practice," said one grower, while another stated they feel the project is almost essential to grow quality fruit.

For more information about the project, contact Mizer at (570) 837 4254 or e-mail jwm5@psu.edu.

PA IPM News

Prepared, edited and distributed quarterly by Kristie Auman-Bauer, Public Relations and Outreach Coordinator for the Pennsylvania IPM Program, 501 ASI Building, University Park, PA 16802, (814) 865-2839, kma147@psu.edu, http://www.paipm.org.

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The Pennsylvania IPM Program is a collaboration between Penn State and the Pennsylvania Department of Agriculture aimed at promoting integrated pest management in both agricultural and urban situations.

Reducing Health Risks in Public Housing
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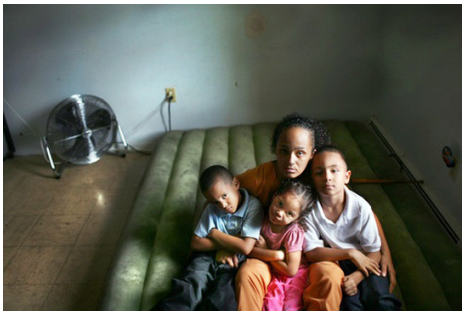

Latino family facing eviction due to bed bug infestation.

ful IPM program."

In addition, Taisey says that IPM information will be conveyed to these audiences in a variety of ways, not only as concepts on paper but as demonstrations in real-world situations. "The on-site, hands-on training will also be practical. For example, we will show where to use sticky traps and steel wool, how to seal cracks and crevices and when to contact a pest control professional." Other topics include how to write a pest management policy, performance-based contracts and standard contract specifications for IPM services, and the basic biology and behavior of pests such as cockroaches, rodents, and bed bugs.

The one-day training course is being made available through the NE IPM Center and the National Healty Homes Training Center. To review course materials and get more background on the course, go to http://www.healthyhomestraining.org/IPM/training.htm.

Additional project activities include "train-the-trainers" sessions so that a network of professionals across the country who are supporting IPM efforts in public housing can be established. In addition, portions of the trainings will be taped to develop DVDs that will be used by housing authorities to educate their residents. "Our ultimate goal is to demonstrate that through a team approach to IPM, public housing staff and residents can work together to reduce pest problems and contribute positively to healthy homes," says Taisey.

Other partners in the project include the four Regional IPM Centers, the Environmental Protection Agency, Centers for Disease Control and Prevention, the state-based cooperative extension system, private consultants, pest control operators, and nonprofit organizations, such as the National Center for Healthy Housing.

The Northeastern Integrated Pest Management Center fosters the development and adoption of IPM, a science-based approach to managing pests in ways that generate economic, environmental, and human health benefits. For more information, visit http://NortheastIPM.org.

Green Cleaning Web Site Offers Toolkits, Webinars

INFORM's web site at http://www.informinc.org/ contains information on green cleaning, fact sheets about toxic chemicals and human health and offer webinars on topics such as green cleaning for schools.

In addition, they have a new online "Toolkit on Cleaning for Healthy Schools" that educates custodial and other building staff about green cleaning. It can also be tailored to create state or local educational programs for agencies, education officials, workers, and parents and communities.

The unique and comprehensive program can also be used to advance policy and practices that help safeguard child and adult health, reduce the use of toxic chemicals, cost-effectively improve cleaning, and improve school indoor air quality.

New Publication Tackles Growing Problem

An overwhelming resurgence of bed bugs throughout the world is causing alarm, especially in urban areas. A new manual developed from a New York City homeless shelter project includes bed bug prevention and how to control them safely using IPM.

The epidemic of bed bugs is particularly evident in New York City, where most city residents live in multiple-unit housing. In 2005, New York City received almost 2,000 bed bug complaints, but just one year later this number soared to over 4,000, says Jody Gangloff-Kaufmann, area IPM specialist at Cornell University and project coordinator.

People become desperate to eliminate them, and in many cases will use illegal pesticide products or misuse legal products. "An alarming number of individuals report buying professional use or banned pesticides on the Internet and using them at home with no prior experience or training," says Gangloff-Kaufmann. "Pests like bedbugs and the pesticides used to control them are potential asthma triggers, which is approaching epidemic levels in urban areas," says Gangloff-Kaufmann.

Supported by the Northeastern IPM Center and the New York State IPM Program, the manual *Guidelines for Prevention and Management of Bed Bugs in Common Living Settings* covers bed bug prevention, management and control, and education and awareness. The publication also includes fact sheets that can be used as stand-alone educational documents.

The manual is available as a downloadable PDF file from web site http://www.nysipm.cornell.edu/publications/bb%5Fguidelines/. For more information on the publication or to request a hard copy, contact Gangloff-Kaufmann at (631) 420-2022 or e-mail jlg23@cornell.edu.

Univited Guests: Stink Bugs (continued from page 1)

Brown Marmorated Stink Bug eggs. (Image by David R. Lance, USDA APHIS PPQ, Bugwood)

Marmorated Stink Bug (BMSB). Long a pest in its native Asia, BMSB is an invasive agricultural pest of stone fruit, especially peaches, as well as many other plant species. It was first detected in North America in Allentown, Pennsylvania in 2001. In addition to being a strong flyer, BMSB is a hitchhiking pest that has the potential to spread rapidly with human assistance to other locations in the United States. The insect is also considered a nuisance pest, especially in the fall, when adult BMSB enter homes looking for a place to overwinter.

A new project funded by the Northeastern IPM Center will try to determine if mass pheromone trapping is a viable management tactic. According to George Hamilton, professor of entomology at Rutgers University and project coordinator, currently there are no adequate pest management alternatives to prevent overwintering adults from entering buildings, resulting in illegal use of bug bombs and other insecticides, which can be dangerous.

The traps Hamilton will be using contain pheromones, which are chemicals produced by insects to communicate with other individuals of their species. Pheromone traps are often used by growers to determine the status of pest populations in the field. Trapping insect pests can be one component of an integrated pest management (IPM) plan.

The project, which is just beginning this fall, will take place in an industrial park in New Jersey. Researchers will evaluate tenants' awareness and concerns, as well as the effectiveness of pheromone traps in an industrial park setting and tenant satisfaction.

According to Hamilton, BMSB adults emerge in spring, and then mate and lay eggs from June to August. "BMSB grows to adulthood during July and August with the adults searching for overwintering sites in September until the first frost, often in homes and other human structures."

During the winter, BMSB do not reproduce, and feeding, if any occurs, is minimal. They are plant feeders and will not bite people or pets. The best way to control BMSB is to prevent them from entering the structure. "Place screens over windows, doors and vents, remove window air conditioners and caulk cracks around windows and doorframes," says Hamilton. "Removing window air conditioners is important, as numerous BMSB will enter this way. Remove any BMSB you find indoors either by hand or by using a vacuum. Be sure to empty the vacuum or remove the bag after using."

For more information about BMSB and its control or to report a sighting, go to web site http://njaes.rutgers.edu/stinkbug/. You can also download a Northeastern IPM Center Regional Pest Alert on BMSB at http://www.hgic.umd.edu/_media/documents/publications/Stink_Bug_Pest_Alert.pdf. For more information about pheromone trapping, contact Hamilton at (732) 932-9774 or email at hamilton@NJAES.rutgers.edu.

New Pest Forecasting Network

A new Penn State pest forecasting network brings several major pest forecasting models into one system.

The Pennsylvania Pest Information Platform for Extension and Education (PA PIPE) at http://pa-pipe.zedxinc.com/cgi-bin/index.cgi? was developed as a collaborative effort between Penn State College of Agricultural Sciences faculty and ZedX, Inc. to provide an early warning system for key pests attacking crops.

The PA PIPE is divided into weather data, crops, disease, insects, and weeds. Weather data provided includes accumulative ambient degree days, deviation from normal ambient degree days, two inch soil degree day accumulations, and deviation from normal for two inch soil degree days.

In other sections, forecasts are provided for the most advanced corn and soybean stage of development, conditions conducive to disease, timing on key insect life stages or percentage into a key life stage, and percentage emergence of key weed species.

In addition, the site include maps that display important information about a pest, crop or weather variable. These maps are provided at a 6 km2 resolution and are updated using current weather data daily. In addition, you can view maps of up to seven day forecasts (dates in dark blue) or look back in time (dates in white) using the calendar in the upper left-hand side of the site.

There is a help icon in the right-hand upper corner of the site to help users understand what is being depicted on the maps. For more information, contact your local County Extension Office or call (814) 865-4028.

Useful Web Sites and Information

Safer Pest Control Project
http://spcpweb.org

Household Products Database US Department of Health and Human Services
http://householdproducts.nlm.nih.gov/index.htm

Effictive Control of Household Pests
http://www.epa.gov/aging/resources/factsheets/echp/index.htm

PCT Bed Bug Seminars
http://www.bedbugseminars.com/

IPM in Mult-Family Housing Training Course
http://www.healthyhomestraining.

Upcoming Events:

November 9-10, 2008 - **AASHE 2008: Working Together for Sustainability - On Campus and Beyond**, Raleigh, NC.
http://www.aashe.org/conference

December 4-6, 2008 - **EPA Indoor Air Quality Tools for Schools (IAQ TfS) Symposium**, Washington, D.C.
http://www.iaqsymposium.com

February 5-7, **2009 PASA's 18th Annual Farming for the Future Conference**, Penn Stater Conference Center, State College PA. Call (814) 349-9856

March 24-26, 2009 - **The Sixth International IPM Symposium**, Portland Convention Center.
http://www.ipmcenters.org/

New Brochures on Invasive Plants

The U.S. Botanic Garden, The Nature Conservancy, and the National Park Service have collaborated on a brochure and wallet guide on invasive plants and non-invasive alternatives, with a focus on the mid-Atlantic region.

Terrestrial Invasive Plants of the Potomac River Watershed is a brochure with color sketches, life history and identifying characteristics, and removal tips for many common invasive plants of the northeastern U.S. It can be downloaded from http://www.nature.org/wherewework/northamerica/states/maryland/files/mdinvasivebrochure.pdf.

*Recommended Landscape Alternatives to Invasive Plants of the Potomac River Watershed and Surrounding Region i*s a wallet-sized list of invasive and non-invasive trees, shrubs, vines, grasses, and groundcover plants, with common and scientific names. It can be downloaded from http://www.usbg.gov/plant-collections/conservation/upload/Potomac_Invasives_wallet_card.pdf.

Gardening with Good Bugs Publication

Lady Beetle larva, a beneficial insect, attacts a root-maggot fly.

Whether you are a Master Gardener or a home gardener, if you have trouble identifying insects in the garden, the publication Gardening with Good Bugs can help.

Written by Allison Mia Starcher, the publication explains the basics of IPM for the homeowner and why we should try to incorporate biological control in gardens. The majority of the 128-page book covers common groups of beneficial insects, including beetles, lacewings, and wasps.

Each section gives a brief review of the life cycle, size, and color description, and host range for common species. It also has many full-color photographs that supplement the text. (Silverleaf Press, ISBN 1934393010). Available through Amazon.com at http://www.amazon.com/Good-Bugs-Garden-Allison-Starcher/.dp/156512071X.

Have Something to Contribute?

If you have information to contribute, or would like to be added to our newsletter e-mail listserv, please contact Kristie Auman-Bauer, Editor, at (814) 865-2839, or e-mail at kma147@psu.edu. Any portion of this newsletter may be reprinted with acknowledgement given to the PA IPM Program.