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## May is Asthma Awareness Month: Do You Know Your Triggers?



*Oriental cockroach, a common asthma trigger*

and asthma symptoms include pests, such as cockroaches and mice, pest by-products such as cast skins, feces and urine, as well as some of the pesticides often used to get rid of pests,” says Michelle Niedermeier of PSCIP. “Indoor air quality has a big effect on asthma sufferers, especially children who spend most of their time indoors at home, school, and in childcare facilities. One component of indoor air quality includes the levels of pests and pesticide use inside buildings.”

An IPM approach to pest control can effectively reduce pest populations while simultaneously reducing pesticide exposure in indoor environments. Information about proper use, storage and disposal of pesticide products is also critical to avoid personal and environmental contamination.

While asthma can be controlled, multiple approaches are needed to limit exposure to allergens and other substances that can worsen asthma. “Research shows that single steps are rarely sufficient,” Niedermeier explains. “By using preventative practices and systematic monitoring of buildings and surrounding grounds, IPM can stop a pest infestation before it gets out of hand.”

Some tips to keep pests at bay in your home and limit the use of pesticides are:

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## Uninvited Guests:

### Ants



**Black Carpenter Ant**

(actual size)



**Pavement Ant**

(actual size)

With arrival of spring and warmer temperatures comes an influx of unwanted pests into your home. One of the most common

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Asthma rates are rising dramatically all over the world, particularly in urban areas. Asthma is a chronic lung disease that can't be cured, but can be controlled with the right medications and by avoiding “triggers”- certain substances that are either allergens or irritants that can cause an asthma attack. Recent research from the Boston University School of Medicine has discovered that allergies to cockroaches are the number one asthma trigger for children living in urban areas.

The Philadelphia School and Community IPM Partnership (PSCIP) provides education about how to reduce allergies and asthma triggers in homes, schools and childcare centers by promoting less-risky methods of controlling indoor pests. “Environmental factors that can trigger asthma

# Uninvited Guests: Ants (continued from page 1)



home invaders this time of year is ants.

How do you keep them out? Remove the conditions that attract them in the first place and allow them to enter.

Most ants live in colonies underground. Because ants are “cold-blooded” they are inactive in the winter, yet in the early spring, the queen of the colony begins to lay eggs in preparation for building up her work force for the summer. By the time temperatures warm up in May, there is a nest full of hungry larvae! All the worker ants, who are sisters, must obey the queen and find food. They fan out in all directions and when one ant finds something good (like in your sink!), she leaves a chemical trail back to the nest so all her sisters can find it too. So . . . how do you get rid of them if they found your food? Check out the steps in the box on the right, or go to the PA IPM Program’s Pest Problem Solver at <http://paipm.cas.psu.edu/452.htm>.

## What To Do if you Find Ants in the Home

### Step One: Pest Identification

Detecting and positively identifying the ants will help you decide on a plan of action. It can also help determine how severe the problem is.

- Pavement ants are one of many species of small nuisance ants that occasionally invade homes. They are 1/16 to 1/8 inches long, and light to dark brown.
- Carpenter ants are ¼ to ½ inches long, shiny dark brown to black, can be destructive to homes and require different tactics than household nuisance ants.
- Make sure not to confuse ants with termites.

### Step Two: Prevention

By eliminating what is attracting ants, such as food, water and shelter, you can get long-term control and avoid the need to use pesticides, which generally provides only short-term results.

- Watch the ants to see where they are entering your home. Prevent ants from entering your home by sealing off all cracks and crevices around windows, baseboards, doors, wires and pipes with silicone caulking on the interior and exterior surfaces.
- Eliminate sources of food and water – repair water leaks, clean up all spills and crumbs, and don’t leave snacks or pet food out overnight.

### Step Three: Control

- Follow ant trails to see where they are entering your home and what they

are after. Wipe up ant trails inside your home with soapy water or vinegar and water.

- A vacuum cleaner can also be used to catch ants in hard to reach places. Be sure to discard or empty the vacuum bag to prevent the pests from escaping later.
- Avoid using foggers, sprays and dusts – you can’t control where the chemicals go, and you are more likely to increase the risks of human exposure. These products can also trigger asthma.
- If you use a pesticide, choose the least-toxic products by reading the active ingredients on the label. Pesticides with boric acid, insect growth regulators (hydroprene), diatomaceous earth or botanical essential oils listed on the label are generally less toxic if used carefully and according to label directions.
- Use enclosed, tamper-proof bait traps that mix food with the pesticide. Workers will carry the pesticide/food mixture back to the nest and feed the queen, thus killing the colony. Choose baits containing hydramethylnon, boric acid, fipronil, sulfluramid or abamectin.
- Using the wrong product for the type of pests you have may result in risks to your health without any benefit of ant control.

# Philadelphia Partnership Receives Award

Three Philadelphia area organizations recently received an award for their contribution to environmental education in a non-teaching area.

The Pennsylvania Association of Environmental Educators (PAEE) Outstanding Contribution to the Environmental Field Award was presented to the Women's Health & Environmental Network (WHEN), The Pennsylvania Integrated Pest Management (PA IPM) Program, and Southeast Pennsylvania Area Health Education Center (SE PA AHEC). The organizations collaborated to design and implement educational programs for childcare centers about non-toxic cleaning and integrated pest management to protect the health of children and their caretakers.

The team has been working together for several years, and in 2008 educated over 200 childcare teachers, staff and parents from ten childcare centers in Philadelphia on these issues and their relationship to indoor air pollution and personal health.

According to PA IPM's Michelle Niedermeier, young children spend anywhere from six to 12 hours a day in childcare or pre-school settings – learning, playing, eating and sleeping. "Indoor air has been shown to be more contaminated than outdoor air, and has demonstrated impacts on the health and well-being of children," she explains. "Nearly one out of every four school-aged children in Philadelphia has been diagnosed with asthma – a chronic lung disease known to be triggered by many irritants including household cleaners and some pesticides. There is



*Advertising a childcare workshop outside a Philadelphia day care center*

a natural desire to create healthier spaces and a good first step is to eliminate exposure to the potentially harmful chemicals found in many household cleaning products and pesticides." By educating caretakers and the parents of children in the centers about these risks, how to reduce chemical exposures, and by providing alternatives, the partnership is helping to create cleaner indoor air for growing children in centers and in homes.

Philadelphia-based WHEN spearheaded the concept of training childcare center staff, and has completed research on the cleaning and pest control practices of childcare centers. WHEN developed and conducted training on chemical cleaners and safer alternatives in child care centers. PA IPM Program's Philadelphia office, the Philadelphia School and Community IPM Partnership (PSCIP), developed and provided the training on safer pest control methods. SE PA AHEC, in West Chester, Pa., secured and managed the grants from the US Environmental Protection Agency (US EPA) and the Pennsylvania Department of Environmental Protection (PA DEP), and coordinated the program.

The partnership of WHEN, PA IPM and SE PA AHEC aims to

continue providing educational programming to childcare center staff and parents, and plans to develop a train-the-trainer program pending future funding.

Seven years ago, the PA IPM Program at Penn State began looking for community-based solutions to manage pests effectively and safely in indoor environments and formed PSCIP. PSCIP members include community groups, schools and child development centers, tenant groups, environmental groups, health professionals, pest control professionals, university staff and city and state agencies. For more information on pests and pesticides and their effects on public health, visit the PA IPM Program's Web site at <http://paipm.org> and click on 'Public Health'. For more information on PSCIP, including meeting minutes, partners in the initiative, and current and future activities, visit Web site <http://www.pscip.org/>. Or, you may contact Michelle Niedermeier at the Philadelphia IPM office, (215) 471-2200, ext. 109, or e-mail at [pscip@psu.edu](mailto:pscip@psu.edu).

# Bug Bites: Happenings of the PA IPM Program

## PA IPM Participates in Sixth IPM Symposium

The Sixth International IPM Symposium, held in Portland, Oregon March 24-26, provided an opportunity to share the world's latest advances in managing pests in ways that are cost effective and protect human health and the environment.

There were more than 700 participants from 29 countries, confirming its designation as the first "International" IPM Symposium. The PA IPM Program also had a strong presence at the symposium. Lyn Garling organized a session on Strategic Partnerships for Urban IPM and co-presented "Building the Philadelphia School and Community IPM Partnership" with Dion Lerman. Lerman was also a panelist in the session "Building Integrated Pest Management in Affordable Housing through Strategic Partnerships". Poster sessions included "Development of an Integrated Pest Management Program for Pennsylvania's Conifer Industry" presented by Cathy Thomas and Sarah Pickel and "Building IPM Capacities in Latino Daycare Centers in Philadelphia, presented by Ed Rajotte, Garling and Lerman.

Plenary speakers at the symposium included Dan Gerling, Department of Zoology, Tel Aviv University, Israel; Janjo de Haan, Wageningen Research Center, The Netherlands; Pierce Jones, Program for Resource Efficient Communities, University of Florida; and Sara J. Scherr, Ecoagriculture Partners, Washington, D.C.

In addition, there were 67 regular sessions, 194 posters, 28 exhibitors and a considerable number of both scheduled and unscheduled side meetings in the mornings and evenings. The regular sessions, posters

and side meetings addressed many different topics, including challenges IPM is facing, pests of concern, invasive species and new technologies.

At the special awards ceremony, International IPM Excellence Awards were presented to the USAID, IPM Collaborative Research Support Program (CRSP), SYSCO Corporation, Green Shield Certification Program, Dr. Zeyaur R. Khan, Nairobi, Kenya; and the Salt Lake City School District, Utah. The Lifetime International IPM Achievement Award was given to the Bio-Integral Resource Center of California. The International IPM Awards of Recognition were awarded to Santa Clara County, California, Grower Incentives for IPM Team Project, and the International Team for Sustainable Adoption of Eggplant IPM in South Asia.

For more information on the symposium, including abstracts and reports, go to <http://www.ipmcenters.org/ipmsymposium09/>. The web site also acknowledges symposium's many sponsors, participants and volunteers who made the event a success.

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## PA IPM Participates in Bed Bug Summit

Recently PA IPM staff member Lyn Garling attended the first-ever National Bed Bug Summit in Washington, D.C hosted by the EPA.

Attendees included apartment owners, hotel managers, pest management professionals, housing agencies, and policy makers. They shared information on topics including the expanding impact of bed bugs on the housing, hospitality, and other sectors; factors contributing to the growing prob-



Lyn Garling, PA IPM, and Sharon Heath, NYC Department of Health

lem; and the response of the public health community and government agencies. Participants also identified ideas and options for bed bug prevention, control, and management to create strategies for outreach and education; and developed recommendations for action.

For more information on the summit, including webinar presentations, results and recommendations, visit the EPA's web site at <http://www.epa.gov/pesticides/ppdc/bedbug-summit/index.html>.

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## PA IPM News

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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.

# Bed Bugs in the News



*Adult bed bug, image by Steve Jacobs*

An overwhelming resurgence of bed bugs throughout the world is causing alarm, especially in urban areas. Why the dramatic increase?

Bed bugs were once a common pest, but were mostly eradicated by older types of insecticides in the last half of the century. The spread of bed bugs may be attributed to more people traveling, improved treatment methods that specifically target other pests, and lack of public awareness.

Pending legislation is aiming to help combat bed bug outbreaks. The Don't Let the Bed Bugs Bite Act of 2009 (H.R. 2248) would provide resources to state and local officials to manage outbreaks in lodging facilities, residential housing and other settings. States can use grant monies received to inspect and treat lodging facilities and to hire professional pest management companies. It would also require public housing agencies to include measures necessary for the management of bed bugs in their annual plans.

The bill's introduction comes on the heels of last month's National Bed Bug Summit. Hosted by the U.S. Environmental Protection Agency, the event drew almost 300 attendees to share information on topics including the expanding effect of bed bugs on the housing, hospitality, and other industries/sectors; factors contributing to the growing problem; and the response of public health and government.

The first step in getting rid of bed bug pests is making sure you

have them to begin with. Bed bugs are small, wingless insects that feed solely upon the blood of warm-blooded animals. Adult bed bugs are chestnut brown and flat and oval in shape and are tiny, about 1/4 inch long. Their small, flat shape enables them to readily hide in cracks, however their bodies become elongated, swollen, and dark red after a blood meal. Newly hatched nymphs look much like the adults but are smaller and nearly colorless.

Bed bugs are active only at night, usually just before dawn. During the day they hide in cracks and crevices in walls, floors, beds and furniture. You may also find cast skins, which are empty "shells" of bugs as they grow from one stage to the next. Also look for fecal spots (composed of digested blood) that are left behind after a bed bug takes a blood meal.

Female bed bugs can lay up to 350 eggs in a lifetime, depositing them on rough surfaces or in cracks and crevices. The eggs hatch in six to 17 days, with nymphs needing a blood meal in order to grow. Bed bugs reach maturity after about 21 days. Both nymphs and adults can live up to one year without a blood meal, making them that much harder to get rid of.

People are often fearful that bed bugs can transmit diseases, but there have been no documented cases of disease transmission as a result of bites. However, their bites can produce an itching, irritating rash from a protein found in the bed bug's saliva. A colorless lump develops at the bite location with discomfort lasting a week or more.

Once you determine you have a bed bug infestation, control can be achieved by following an IPM approach that involves tactics that are safe and environmentally compatible, including preventive measures, sanitation, and chemicals applied to targeted sites.

Prevent bed bugs from entering a home by keeping infested items

out. It is important to carefully inspect clothing and baggage of travelers, looking for bed bugs and their telltale fecal spots. Be sure to inspect mattresses, box springs, and bed frames, as well as crack and crevices that bed bugs may hide in during the day or when digesting a blood meal.

After finding evidence of a bed bug infestation, thoroughly vacuum the mattress and surroundings, wash bedding and clothing in hot water, and clean and sanitize the home. After vacuuming, immediately place the vacuum cleaner bag in a plastic bag, seal tightly, and discard in a container outside. This prevents captured bed bugs from escaping into the home.

After vacuuming the mattress, enclose it in a zippered mattress cover that is used for house dust mites. Any bed bugs remaining on the mattress will be trapped inside the cover. Leave the cover in place for a year or so since bed bugs can live that long without a blood meal.

Homeowners can also seek assistance from a professional pest control company. The insecticides that are available are commercial products requiring special equipment and training, and are not readily available in 'over-the-counter' products. In addition, experienced companies know where to look for bed bugs, are schooled in proper techniques, and have an assortment of management tools at their disposal.

When choosing a pest control company, make sure they have a Pennsylvania Pesticide Applicator Certification or Registered Technician card, a business license and general liability insurance coverage. Also ask for a list of local references so you can learn about their past performance in treating bed bugs.

For more information on bed bugs and their control, see [http://www.ento.psu.edu/extension/factsheets/bed\\_bugs.htm](http://www.ento.psu.edu/extension/factsheets/bed_bugs.htm).

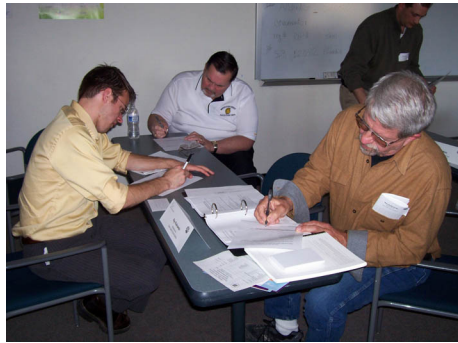
# School IPM Workshops Offered

Children spend large portions of their day inside school buildings where the level of pollutants and toxins are typically three to five times higher than outdoors. Exposure to various levels of pollutants and toxins can cause acute and chronic problems as children develop. Pests found in and around the school and the pesticides often used to manage them can contribute to the poor indoor air quality of these buildings.

Over the past decade, Pennsylvania has made great strides in promoting the use of IPM when addressing pest problems in a school setting. The PA Acts 35 and 36 state all public schools must have a written IPM plan in place and that there must be proper notification of any pesticide spraying occurring on school property. Although these laws have been in place since 2002, schools may find it challenging to figure out how IPM can best be used to address their school's particular needs.

The PA IPM program in conjunction with the IPM Institute of North America held a workshop recently at the Connelly Learning Center in Pittsburgh to kick off a new PA school IPM initiative. The Pittsburgh School District has been using IPM practices for several years to manage the pest problems found in their 90-plus buildings and has received the IPM Star Certification. This district serves as an excellent model of what can be achieved by using IPM, by being proactive instead of reactive to pest problems, and by having cross-department education and support for IPM practices.

School district administrators, facility managers, food service



directors, environmental safety directors, principals and other personnel in charge of pest control were invited to attend this free workshop. Participants received background information on what is included in IPM programs for schools and the laws surrounding IPM implementation in and around school grounds. They had the opportunity to speak with Maria Moio and Mike Dicroce, Pittsburgh School District Facilities Staff, about their school IPM plan and took a walk-through of the building while assessing common pest problems and ways to manage them. Participants also had the chance to talk with PA Department of Agriculture staff in charge of pesticide regulations and school IPM compliance assistance. Overall, the participants reported they found the workshop beneficial and all participants indicated they gained new information in a variety of areas surrounding school IPM.

This workshop is the first building block of the formation of the new PA School IPM Network (PASIN). The PA IPM Program has developed a list-serve to open the lines of communication between school entities across the state. This network will serve as a place to inform individuals of pertinent school IPM information, to ask questions about other school dis-

trict's IPM tactics, and to discuss various challenges that may arise while implementing a school IPM plan. To sign up for the list-serve, please contact Mary Ann Farrell at The Penn State Center, Pittsburgh, PA at [mvf10@psu.edu](mailto:mvf10@psu.edu) or (412) 263-1000. If you would like help with or have questions about school IPM compliance, you may contact Sarah Pickel at the PA department of Agriculture at [c-sapickel@state.pa.us](mailto:c-sapickel@state.pa.us) or (717) 772-5227.

A second workshop is currently being planned for the fall of 2009. Date and location are not determined at this time. Visit the PA IPM program website at <http://www.paipm.org> or contact Lyn Garling at [ljg5@psu.edu](mailto:ljg5@psu.edu) or (814) 863-8884 for more information.

## May is Asthma Awareness Month (continued from page 1)

- Keep living areas clean and uncluttered.
- Keep yards and vacant lots maintained by mowing and regular trash pickup.
- Repair holes and cracks in walls, windows, and screens.
- Seal routes of pest entry in and around windows, pipes and gaps in walls by using caulking, copper mesh, or other pest-proof materials.
- Share information with neighbors - pests do not stay in one place.
- If you decide to use a pesticide, read the label first. Choose the least-toxic product (one that says "Caution", NOT "Danger" or "Warning") that will target the pest of concern.
- Avoid home sprays and foggers - fine aerosol mists can easily be breathed and also coat indoor surfaces with pesticides.
- Use powders and contained baits according to label directions.
- Find a reputable and licensed pest control specialist, and ask for IPM services.

For more information on pests and pesticides and their effects on public health, visit the PA IPM Program's Web site at <http://paipm.org/> and click on 'Public Health'. For more information on PSCIP, visit Web site <http://www.pscip.org/org>, contact Michelle Niedermeier, PSCIP coordinator, at the Philadelphia IPM office, (215) 471-2200, ext. 109, or e-mail [pscip@psu.edu](mailto:pscip@psu.edu).

## Bug Bites (continued from page 4)

### Healthy Homes Training Offered

PA IPM program staff are now offering Healthy Homes training workshops. In partnership with the National Center for Healthy Housing, PA IPM is conducting a series of workshops on making homes healthy and safe for everyone, especially children and seniors. Workshops participants have included staff of the Childhood Lead Poisoning Prevention Programs of the PA Department of Health, Philadelphia Department of Public Health, community groups and pest management professionals. The three programs are:

**Essentials of Healthy Homes for Practitioners** - This two-day foundation training course will help participants understand the connection between health and housing and how to take a holistic approach to identifying and resolving problems that threaten the health and well-being of residents. It is ideal for people who provide health or inspection services. The training course materials are also available in Spanish.

**Healthy Homes for Community Health Workers** - This new, streamlined one-day course is for people who work as health advocates in their communities - community health workers (CHWs), home visitors, public health nurses, practitioners and others. The course will train CHWs to provide one-on-one and large group education on healthy homes, provide general advice about specific healthy homes problems, and be able to recommend healthy homes approaches.

**Integrated Pest Management for Multi-family Housing** - Pest control in multi-family housing is challenging and requires a team effort. Chronic pest infestations can be a health hazard, yet so can repeated use of pesticides inside homes. This one-day workshop on IPM brings together building managers, residents and pest control operators and explores cost-effective and safe pest management techniques. This workshop covers information on major types of pests, inspection and prevention techniques, and safest, most effective solutions. It also emphasizes the need for cooperation among everyone - management, tenants and pest control operators - in an interactive and hands-on learning environment.

For more information about the workshops, or to inquire about scheduling, contact Dion Lerman at the Philadelphia PA IPM office, [dlerman@psu.edu](mailto:dlerman@psu.edu), or call 215-264-0582.

## Useful Web Sites and Information

### EPA's Effective Control of Household Pests Fact Sheet

<http://www.epa.gov/aging/resources/factsheets/echp/index.htm>

### EcoWise IPM Contracting Toolkit

<http://www.ecowisecertified.org/toolkit/>

### Pollinator Partnership's New Pollinator Planting Guides

<http://www.pollinator.org/guides.htm>

### The Center for Rural Pennsylvania

<http://www.ruralpa.org/>

## Upcoming Events:

June 29-July 2, 2009 - **Penn State's Bug Camp for Kids**

<http://www.ento.psu.edu/SciEd/BugCamp.html>

July 15-17 2009 - **Third Conference on Facilitating Sustainable Agriculture Education**, Iowa State University, Ames, Iowa.

<http://sustainableaged.org/Conferences/2009IowaStateUniversity/tabid/77/Default.aspx>

August 18-20, 2009 - **Penn State's Ag Progress Days**, Rock Springs, Pa. <http://apd.psu.edu/>

October 3, 2009 - **Penn State's The Great Insect Fair**, Penn State Ag Arena, University Park, Pa. <http://www.ento.psu.edu/>

## Getting Rid of Stink Bugs



Adult stink bug (image by Steve Jacobs)

For some homeowners, one of the first signs of spring is the sudden appearance of stink bugs in their homes.

Brown Marmorated Stink Bug (BMSB) is an invasive agricultural pest of stone fruit and other plants. A native of Asia, BMSB is a hitchhiking pest that has the potential to spread rapidly with human assistance.

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 door frames. Removing window air conditioners is also 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](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](mailto:hamilton@NJAES.rutgers.edu).

## 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](mailto:kma147@psu.edu). Any portion of this newsletter may be reprinted with acknowledgment given to the PA IPM Program.