



## Pests and Pesticides in Child-serving Facilities: An IPM Newsletter

### Upcoming webinars

Get practical advise in this EPA webinar, **Keeping Rodents Out of Your School**, on Jan. 27 at 12:00 noon to 1:30 p. m. EST. Join internationally known New York City rodentologist, Bobby Corrigan, and Claudia Riegel, director of New Orleans Mosquito, Termite and Rodent Control Board by registering at [https://epacqpub1.connectsolutions.com/content/connect/c17/en/events/event/shared/80162857/event\\_landing.html?scoid=79936350& charset =utf-8](https://epacqpub1.connectsolutions.com/content/connect/c17/en/events/event/shared/80162857/event_landing.html?scoid=79936350& charset =utf-8)

### First Friday of the Month Series



All webinars start at 2:00 p. m.

February 6, 2015 — Pesticide Strategy: the Good, the Bad, and the Ugly, Presented by Kaci Buhl, Coordinator, National Pesticide Information Center

March 6, 2015 — Fire Ant Management Using Baits, Presented by Dr. Lawrence "Fudd" Graham

April 3, 2015 — Common Termites of the Southern United States: Biology, Behavior, and Management, Presented by Dr. Robert Puckett

May 1, 2015 — Beneficial Garden Helpers, Presented by Dr. Kris Braman

June 5, 2015 — Insect-borne Diseases Affecting People, Presented by Dr. Nathan Burkett-Cadena

August 7, 2015 — Management of Japanese Beetles and Other White Grubs, Presented by Dr. Juang-Hornq (J. C.) Chong

September 4, 2015 — Bees, Wasps and Hornets - They're all Different, Presented by Dr. Charles Ray

October 2, 2015 — Keep Ants and Cockroaches from Ruining Your Holidays, Presented by Elizabeth "Wizzie" Brown

November 6, 2015 — Let's Beat the Bug! New Things to Know About Bed Bugs, Presented by Dr. Stephen Kells

For more information on the series and how to connect to the webinars,

visit: <http://www.extension.org/pages/72197/2015-all-bugs-good-and-bad-webinar-series#.VLfMHC6AuDc>

### Special Points of Interest



### Keeping Rodents Out of Your School



### Do You Have An IPM Policy?



### Stored Product Pests

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## It's 2015! Do You Have an IPM Policy?

Pat Barnwell

An original goal of *A Strategic Plan for Integrated Pest Management in Schools in the United States* is to have all schools to adopt IPM by the year 2015. The year 2015 has arrived, *does your school system have a IPM policy in place?* Many of you are using IPM but may not have a written policy.

### Integrated Pest Management Policy

\_\_\_\_\_ School District

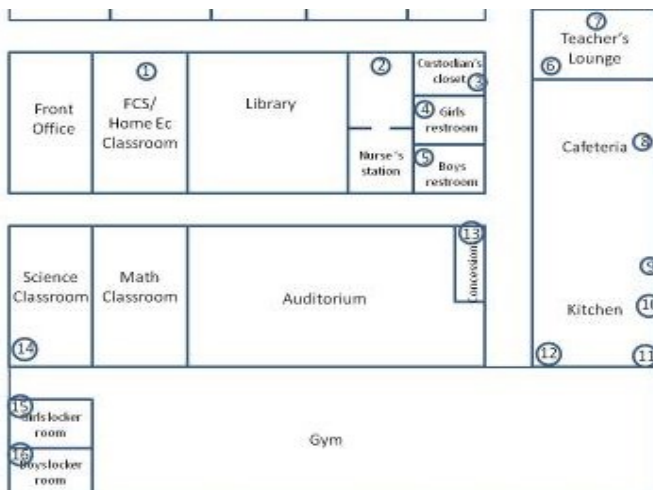
Approved \_\_\_\_\_

Structural and landscape pests can pose significant problems to people, property and the environment. Pesticides can also pose risks to people, property and the environment. It is therefore the policy of the \_\_\_\_\_ School District to incorporate integrated pest management procedures into the maintenance program conducted by our school district for control of indoor and outdoor pest problems.....

You can find an example of a policy that you can adopt or modify at [http://schoolipm.utk.edu/success\\_results.html](http://schoolipm.utk.edu/success_results.html) or at <http://www.epa.gov/pesticides/ipm/brochure/step1.htm>. Go ahead and make your policy official and inform the school community of this effort. Promote your program with posters found at <http://schoolipm.utk.edu/posters.html>!

Not sure that IPM will work to control pests in your school? Start small, try using IPM practices in one area such a school kitchen. School kitchens are frequently serviced monthly since pests can find food, water and shelter in one convenient place. Often cockroaches hitch a ride from the warehouse to the kitchen in cardboard boxes. Remove contents from boxes and store items in pest proof containers on wire shelves. Recycle the cardboard. Ask your pest control technician to monitor with glue boards. Placing monitors at the wall/ floor junction under shelving in the pantry and on shelves at various levels, under equipment in the food preparation area, under sinks, and behind ice cream coolers and in the cabinet of the serving lines is good practice as is dating, numbering and mapping the location of monitors. Cockroaches like cracks and crevices and dark, warm areas. Look for moisture sources and fix leaks. Sanitation in school kitchens is usually very good, but sometimes areas under equipment or in hard to reach corners are neglected. Seal around bulletin boards, utility pipes and cables to eliminate harborage sites. Move the dumpster as far as is feasible from the kitchen door. Check monitors frequently to see if any pests are present. Ask your pest control technician to use baits instead of sprays when pests are found.

Long term control of pests depends upon eliminating pest conducive conditions not pesticides. These are just a few practices that you can try. Let us know how they work for you.



Example facility map of glue board placement from U T School IPM Logbook. <http://schoolipm.utk.edu/documents/logbook2013Fall.pdf>



Glue boards, the cornerstone of good IPM monitoring. <http://citybugs.tamu.edu/factsheets/ipm/what-is-a-sticky-trap/>

## Stored Product Pests

Pat Barnwell and Karen Vail

Stored product pests may arrive in products transported from the manufacturer or warehouse to a commercial kitchen, or they can enter from the surrounding environment. The most common stored product pests are beetles or moths. Both adults and larvae of beetles feed on and damage products while only moth larvae feed on stored products. Products vulnerable to stored product pests include cereals, flour, cake mix, cookies, cornmeal, grits, dry soups, dried herbs and spices, candy, chocolate, rice, dried fruits and vegetables, popped and un-popped popcorn, peas, beans, corn kernels, nuts and seeds (of all kinds of plants), crackers, shelled and unshelled peanuts, powdered milk and protein (e.g., meat and chicken flavorings), biscuit mix and pasta.

Stored product pests can travel within a structure. Food such as cereal and macaroni that is often used for art projects can become infested and the adults may travel to the kitchen to lay eggs. Decorative items made from dried plant material such as corn, fabric door stops weighted with rice or beans and stashes of seeds stockpiled in wall voids, crawl spaces or attics by birds and rodents are other potential sources of stored product pest infestations.

Both beetle and moth larvae have chewing mouth parts and are capable of chewing through packaging such as cardboard, foil, cellophane and plastic bags. Storing products in well-sealed heavy plastic, glass or metal containers and jars can help to prevent the spread of these pests from contaminated food.

Inspect food deliveries upon arrival to check for damaged packaging and spillage. Date packages of food and always use older stock first. Try to limit supplies to what can be consumed within 2 to 4 months. Remove food from cardboard boxes and place in pest-proof containers. Keep food storage areas tidy, clean up crumbs and spills paying particular attention to cracks and crevices.

Pest management professionals often use pheromone traps to monitor for the presence of stored product pests. Pheromones used in traps can either mimic sexual pheromones attracting male pests to the lure or act as aggregating stimulants attracting both sexes to the traps. Another technique relies on a food attractant, such as oil, food extract or synthesized scent, known to be attractive to particular pests to entice them to traps.

Once items become infested, it is best to discard them. Most pests that infest foods have multiple generations per year and can continue infesting foods until their food source is discovered and eliminated. Small amounts of foods or decorative items can be stored in the freezer at 0° F for at least four days to kill pests.

Some common pests include the Indianmeal moth, drugstore beetles, sawtoothed grain beetles, and rice weevils. See <http://schoolipm.illinois.edu/storedproductpests/> for more information on other pests.

**Indianmeal moth-** Indianmeal moths are some of the most common stored product pests. Adults are short-lived and have cream and mottled copper and black wings. Mating and egg laying take place at dawn or dusk when adults are most active. Odors from foods attract the females where they randomly lay eggs on or near food material. Eggs hatch in a few days and larvae can enter packing through seams and tunnel into foods reinforcing their tunnels with webbing. Food infested with Indianmeal moths is often full of frass (caterpillar poop) and webbing. The length of the larval stage depends on food availability and temperature. Larvae migrate from their feeding sites to find a suitable place for pupation often in wall/ceiling junctions or crevices. Mature larvae have brown heads, are about 5/8 " in length and dirty white in color. However, color can vary towards green or pink tones depending on diet. Diet includes grain and its products, dried fruits, nuts, seeds, candies, chocolate, powdered milk and bird seed.



Pheromone trap. [http://www.extension.org/pages/63917/how-to-prevent-future-infestations-of-stored-product-pests#\\_VGO2BvnF96F](http://www.extension.org/pages/63917/how-to-prevent-future-infestations-of-stored-product-pests#_VGO2BvnF96F)





Indianmeal moth larvae. <http://extension.uga.edu/publications/detail.cfm?number=B1378>



Indianmeal moth. <http://schoolipm.illinois.edu/indianmealmoth/>



Sawtoothed grain beetle. <http://schoolipm.illinois.edu/grainbeetles/>

Drugstore beetles are small (1/16" to 1/8") reddish brown insects with striated wing covers; the head is hidden when viewed from above. They are attracted to light and lay eggs in or near food that can include ordinary food and spices as well as drugs, hair, horn, leather, and museum specimens. Larvae are "c" shaped, have legs and are similar in size to the adults. Pupation occurs in silken cocoons that have bits of food material incorporated. Life cycle from egg to adult may take 7 months, but there can be up to four generations a year depending on temperature. Adults leave characteristic small round holes in products as they emerge.

Rice weevil adults are 1/8" long. Like all weevils they have snouts. Four pale reddish marks on their pitted wing covers distinguish them from other weevils that attack stored products. Larvae are legless and develop from eggs laid inside a grain kernel. Adults emerge from the grain kernels after their new hatched bodies have had a chance to harden. Grains attacked include corn, wheat, rice, beans, nuts, rye, and buckwheat. Feeding on wheat products, grapes, apples and pears has also been reported. Rice weevils are attracted to lights and can fly.

Sawtoothed grain beetles are flattened, small (1/16" to 1/8") reddish brown insects with tooth-like projections along the sides of the thorax. Their flattened body shape permits easy entry into seams and crevices of food packages. Both adults and larvae feed on cereals, dried fruits and nuts. Adults will feed on eggs and dead bodies of stored product moths.

References: Suiter, Daniel et al., Stored Product Pests in the Home, <http://extension.uga.edu/publications/detail.cfm?number=B1378> accessed 11/12/14



Small round holes characteristic of emergent drugstore beetles. <http://extension.uga.edu/publications/detail.cfm?number=B1378#Introduction>



Drugstore beetle. <http://schoolipm.illinois.edu/drugstorebeetles/>

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**Comments or questions  
 on this newsletter?  
 Contact [kvail@utk.edu](mailto:kvail@utk.edu)**

Follow us on  
 Facebook at



<http://tinyurl.com/schoolipmFB>

**For more information about IPM in Tennessee schools and other facilities, or to view past issues of *Pests and Pesticides in Child-serving Facilities*, please visit [schoolipm.utk.edu](http://schoolipm.utk.edu).**

### NATIONAL IPM INFORMATION

eXtension's Pest Management In and Around Structures: Urban Integrated Pest Management  
<http://www.extension.org/Urban%20Integrated%20Pest%20Management>

National School IPM  
[schoolipm.ifas.ufl.edu/](http://schoolipm.ifas.ufl.edu/)

IPM in Schools Texas  
[schoolipm.tamu.edu/resources.htm](http://schoolipm.tamu.edu/resources.htm)

IPM Institute of North America  
[www.ipminstitute.org/](http://www.ipminstitute.org/)

School IPM PMSP—all schools IPM by 2015  
[http://www.ipminstitute.org/school\\_ipm\\_2015.htm](http://www.ipminstitute.org/school_ipm_2015.htm)

National Pest Management Association IPM  
[www.whatisipm.org/](http://www.whatisipm.org/)

EPA schools  
[www.epa.gov/pesticides/ipm/schoolipm/index.html](http://www.epa.gov/pesticides/ipm/schoolipm/index.html)

For further information about the IPM program at your school or in your county, contact your county Extension Agent or the school IPM Coordinator. For county agent contact information, please visit [www.agriculture.utk.edu/personnel/districts\\_counties/default.asp](http://www.agriculture.utk.edu/personnel/districts_counties/default.asp)

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### Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

### Disclaimer

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

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