



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

Pest-Proofing Before the Students Return

Karen M. Vail

Most classrooms are void of students right now which provides an opportunity to pest-proof, i.e., remove the pest's access to potential habitat, food and water.

- Empty and thoroughly clean garbage cans, dumpsters and recycling containers.
- Clean and clear the Lost & Found area.
- Food items should be removed from the classroom or, at the very least, stored in plastic, sealed containers.
- Remove cardboard storage boxes and replace with sealable plastic containers. Otherwise, brown recluse spiders and cockroaches will take shelter and can be transported in the corrugation of the box.
- Protect yourself from brown recluse bites when moving objects. See *Avoiding Brown Recluse Bites* at http://schoolipm.utk.edu/documents/newsletters/march_2011.pdf
- Repair leaky faucets and look for ceiling stains which may indicate a leak.
- Reduce clutter in classrooms by placing items in sealable, plastic storage boxes, or if items haven't been used in more than two years, consider tossing them.
- NO MAN'S LAND—THE TEACHER'S LOUNGE!!!! The teacher's lounge refrigerator, microwave, and room in general is often neglected by cleaning staff as they feel adults should be able to clean up after themselves. Because teachers are preoccupied with other matters, sanitation in the lounge is often poor. Now is a good time to clean the refrigerator and microwave and underneath these items. Toss all expired items. The teacher's lounge is an appropriate place to put several glue boards to monitor pests' presence.
- All brooms and mops should be hung heads up on wall mounted racks to prevent flies, cockroaches and spiders from living in them.
- Flush toilets and run water in sinks at least once every 2 weeks to keep P-traps from drying up and American roaches from gaining access via a dry drain.
- Inspect cardboard boxes for cockroaches and other pests before they are brought into the pantry. Failure to do this can introduce German cockroaches into the kitchen and start the year off on a bad note. Remove the cardboard as soon as possible and place items directly on wire shelf or in plastic, sealable containers.
- Seal pipe penetrations and inspect door sweeps and replace them if necessary.

Special points of interest:

- > Pest-Proofing before the students return
- > Ticks (and brown recluse spiders, American cockroaches and stinging pests)

During this year's regional IPM workshops held in West TN, we received requests for more information on ticks, brown recluse spiders, stinging insects and American cockroaches. In this newsletter we'll address the ticks, but provide links to information on the other pests.

This issue

Pest-Proofing before the students return	1
Ticks (and brown recluse spiders, American cockroaches and stinging pests)	2
UT YEAH Contacts	5
Links	5

- Kitchen floors should be cleaned (sprayed or steam washed) to reduce grease and dirt build up in corners and under heavy equipment. Ideally this should be done on a monthly basis or at least twice a year.

If you neglected to treat for fire ants in May or in June, you still have some time before the students return. See *Managing Fire Ants in and around Tennessee's Schools* <https://utextension.tennessee.edu/publications/Documents/PB1788.pdf> for details. It's important to follow the guidelines about temperature restrictions when applying baits. Fire ants don't forage as readily when temperatures exceed 90 degrees F; thus, it is often necessary to apply the bait in the evening in the summer.

Modified from Snyder, J.L. and D. H. Gouge. 2008. *Pest Proof for summer break!* Pest Press, University of Arizona Cooperative Extension, June/July issue.

Ticks (and brown recluse spiders, American cockroaches and stinging pests)

During this year's regional IPM workshops held in West TN, we received requests for more information on ticks, brown recluse spiders, stinging insects and American cockroaches. In this newsletter we'll address the ticks. A link to a previous article on brown recluse can be found at http://schoolipm.utk.edu/documents/newsletters/march_2011.pdf. We've featured the American cockroach in a previous newsletter *Pest Spotlight* at http://schoolipm.utk.edu/documents/newsletters/july_2011.pdf and hope to address stinging insects in a future newsletter article. For now, this link for *Stinging Insects* may be helpful, <http://www.extension.org/pages/23615/structural-and-public-health-pests:-stinging-insects>.

The eXtension web site has an updated school IPM action plan for ticks which can be found at <http://www.extension.org/pages/24666/school-ipm-action-plan-for-ticks>. What follows below is excerpted from the eXtension web page. Please see the above link for all of the information.

Ticks are sometimes of concern on school properties, especially those species that can transmit pathogens that cause serious diseases to humans such as Rocky Mountain spotted fever, Lyme disease, ehrlichiosis, and others. In Tennessee, the lone star tick *Amblyomma americanum*, American dog tick *Dermacentor variabilis*, black-legged tick *Ixodes scapularis* and brown dog tick *Rhipicephalus sanguineus* are the species of most concern around schools.



Lone star tick adult.



Black-legged tick adult.



American dog tick adult.

Management practices include:

- personal protective measures (such as wearing appropriate clothing, avoiding habitats associated with ticks, and judicious use of insect repellents),
- landscape modifications,
- excluding wildlife that host ticks, where legal and possible
- if necessary, limited use of pesticides as a targeted barrier treatment against ticks. Wildlife exclusion may be tied to local ordinances, so check with your local authorities.

Ticks are blood-feeding arthropods related to spiders and mites. The adult and nymphal tick has eight legs compared to insects which have six legs. The first instar or seed tick has six legs. Ticks can feed on a variety of animals including birds, amphibians, reptiles, and mammals (including people). The primary habitats for ticks are wooded areas and the open or grassy areas at the edges of wooded areas. On school properties, ticks are most often found on playgrounds, athletic fields, cross-country trails, paths, and school yards located in and adjacent to wooded areas, especially where deer and other wildlife hosts are abundant.

As ticks go through their life stages (egg, larva, nymph, and adult), they usually change hosts. Young ticks will attach to small animals and be dispersed by them. Nymphs and adults will climb onto grasses, herbaceous plants, and shrubs which enable them to latch onto larger hosts. Adult ticks remain in an area for months seeking an appropriate host.

On humans, ticks migrate around the hairline, the area behind the ears, in the armpits, around the waist, ankles, buttocks and other places. It takes five to six hours for a tick to become firmly attached and up to ten days for it to become fully engorged with blood. The female needs a blood meal in order to lay her eggs. Ticks have been known to survive for months without a blood meal.

Monitoring and Inspection

Landscape management practices designed to make the landscape more inhospitable to primary tick hosts may reduce a tick population. However, these practices alone will not eliminate all ticks and the risk of associated diseases. Therefore, other tick control practices must be integrated with the overall program to reduce the risk of disease. It may be impractical and expensive to institute tick control measures and landscape management practices in all areas of the school grounds. Efforts should be focused on frequently used areas (playground, ball fields, area immediately surrounding the school building, etc.).

A “tick drag” or “tick flag” may be used to determine if ticks are present since ticks are usually found within 18 inches of the ground. To construct a tick drag, attach a 3 ft x 3 ft white cloth, white heavy flannel, or corduroy material stapled to a dowel and weighted with a second dowel or curtain weights and tie a rope to each end of the wooden dowel. Pull the drag across an area of grass or low brush. At fixed intervals (for example, every 10 meters at high tick density or every 100 yards at low density) examine the cloth and count the number of ticks. This method catches about one out of every ten ticks. Flagging involves brushing higher vegetation with a cloth attached to one end of a pole. Such areas include the understory in wooded areas and brush and shrubs in open areas, along edge habitats, and along property borders.

Removing Ticks

- Use fine-tipped tweezers to remove attached ticks. Grasp the tick as close to the skin surface as possible and pull upward with steady, even pressure. Do not twist or jerk the tick; this may cause the mouthparts to break off and remain in the skin. If this happens, remove mouthparts with tweezers or consult the school nurse.
- Do not squeeze, crush, or puncture the body of the tick because its fluids may contain infectious organisms.
- Do not handle the tick with bare hands because infectious agents may enter through mucous membranes or breaks in the skin.
- Apply rubbing alcohol to the bite and wash hands with soap and water

The tick may be saved for future identification should disease symptoms develop within a month. Place the tick in a small vial containing ethanol (drinking alcohol such as vodka). The tick and vial could also be frozen. Write the date of the bite on a piece of paper with a pencil and place it in the vial. (Writing in pen will disappear once placed in alcohol.)

Nonchemical Control Measures

Management practices include personal protective measures, habitat modification, and limited use of pesticides as a targeted barrier treatment.

Personal Protection

- Wear light-colored clothing with long-pants tucked into socks when going into tick-infested areas.
- Educate students, families, and school staff about ticks, tick-vectored diseases, and the proper use of repellents.
- Keep to the center of trails to minimize contact with brush and tall grasses.
- Wash and dry clothing at the highest temperature setting upon returning from a tick-infested area.

Habitat Modification

- Manage landscape to reduce humidity where ticks are likely to be found.
- Reduce cover for mice. Eliminate wooded, brush-covered habitat, prune lower branches of bushes, clean-up storage areas, woodpiles and junk piles.
- Reduce deer habitat or erect deer-exclusion fencing.
- Rake leaf litter and use wood chips or plant shade-tolerant grass under shade trees to reduce tick abundance.
- Trim trees and brush to open up wooded areas in and around areas of human activity, allowing sunlight to penetrate to reduce moisture and thus reduce tick habitat.
- Keep grass mowed.
- Remove leaf litter, brush, and weeds at the edge of the lawn.
- Restrict the use of groundcover such as pachysandra in areas frequented by people.
- Discourage rodent activity. Cleanup and seal stone walls and small openings on school properties.
- Move bird feeders away from school buildings.
- Avoid landscape plantings that attract deer or use deer-exclusion fencing to keep deer off school properties.
- Keep playground equipment away from woodland edges and place them on wood-chip or mulch-type foundation.
- Trim trees and shrubs on the school properties and at the woodland edges to permit more sunlight.
- Create three foot or wider wood chip, mulch, or gravel border between turf and woods.
- Widen woodland trails/walkways to permit trail-users to avoid contact with woody vegetation and tall grasses.

Chemical Control Measures

If tick-vectored disease risk is high, a targeted barrier treatment can reduce tick populations along wooded property edges where human activity is also high. These locations can include along edges of sports fields, along cross-country running trails, at margins of playgrounds. These applications should be timed to coincide with peak nymphal populations.

Restrict application of pesticides to high-risk tick habitat such as edges of lawn and woodlands. Spraying open fields and lawns is not necessary. The product must be labeled for area-wide tick control.

Source: <http://www.extension.org/pages/24666/school-ipm-action-plan-for-ticks>

UT YEAH Contact Information:

Karen Vail, Ph.D., Professor,
 Urban IPM Specialist, UT Extension
 205 Ellington Plant Sciences Bldg.
 2431 Joe Johnson Drive
 Knoxville, TN 37996-4560
 ph: (865) 974-7138
 fax: (865) 974-4744
 email: kvail@utk.edu
 web: <http://schoolipm.utk.edu>
<http://eppserver.ag.utk.edu/personnel/Vail/vail.htm>



Martha Keel, Ph.D., Professor
 Housing & Environmental Health Specialist,
 UT Extension
 218 Morgan Hall
 ph: (865) 974-8197
 fax: (865) 974-5370
 email: mkeel@utk.edu
 web <http://utyeah.utk.edu>

James P. Parkman, Ph.D.
 Former UTIA IPM Coordinator
 205 Ellington Plant Sciences Bldg.
 ph: (865) 974-7135
 fax: (865) 974-4744
 email: jparkman@utk.edu

Mary Rogge, Ph.D., Assc. Professor
 UT College of Social Work
 225 Henson Hall
 ph: (865) 974-7500
 fax: (865) 974-4803
 email: mrogge@utk.edu

The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services. All qualified applicants will receive equal consideration for employment without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation,

**Comments or questions
 on this newsletter?
 Contact kvail@utk.edu**

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 or utyeah.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/

IPM in Schools Texas
schoolipm.tamu.edu/resources.htm

IPM Institute of North America
www.ipminstitute.org/

School IPM PMSP—all schools IPM by 2015
http://www.ipminstitute.org/school_ipm_2015.htm

National Pest Management Association IPM
www.whatisipm.org/

EPA schools
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

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.

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating. UT Extension provides equal opportunities in programs and employment.