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Department of Entomology, College of Agriculture and Life Sciences North Carolina State University Integrated Pest Management for North Carolina Schools and Child Care Facilities

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CHAPTER 1

North Carolina Schools and Child Care Facilities Integrated Pest Management Program

INTRODUCTION

In general, most people have little tolerance for pests in and around buildings. Pests are a nuisance: they damage property, contaminate and destroy food, and sometimes transmit diseases. Research has indicated that children are especially at risk from pests. For example, cockroaches and their remains are recognized as sources of allergens that can trigger asthma attacks in children. Cockroaches, mosquitoes, flies, ticks, fleas, rodents, and birds can be involved in spreading diseasecausing viruses, bacteria, and fungi.

Pest control is necessary to safeguard the health of children and other occupants of schools and child care facilities and to prevent pests from damaging property. Pest control programs that rely primarily on routine application of pesticides, however, can expose children to pesticide residues unnecessarily. Compared to adults, children are more at risk from pesticide exposure because of their rapid growth, small body size, and habits. Younger children may spend considerable time on floors (Figure 1). They touch various surfaces and objects, and they often put their hands into their mouths without washing them. These behaviors increase the potential for inadvertent exposure to pesticides.

As parents have become aware of the potential hazards to children from pesticide exposure, they have encouraged schools and child care centers to use alternative approaches that are effective and safer for use around children. In an effort to reduce the impact of pests and pesticides on the health and well-being of children and other occupants of schools, the North Carolina General Assembly passed the 2006 School Children's Health Act (SCHA). The SCHA required all school districts to adopt integrated pest management (IPM) programs by October 2011 and to initiate a plan to notify parents, guardians, and staff 72 hours in advance of any nonexempt pesticide application in school buildings and grounds. Although there is currently no law requiring child care facilities to adopt IPM programs or to provide advance notification of pesticide applications, we encourage them to shift to an IPM approach to pest control.

Note: Although school IPM programs have focused primarily on structurally related pests (ants, cockroaches, rodents), the SCHA also covers outdoor pests, including arthropods (insects, mites, spiders), vertebrates (birds, moles, voles), and weeds, as well as the control of these pests with insecticides, herbicides, and other pesticides.



Figure 1. The potential for inadvertent exposure to pesticides may be greater for children because they often spend considerable time on floors.

OVERVIEW OF INTEGRATED PEST MANAGEMENT

Definition

IPM is a comprehensive approach to pest control that combines effective, economical, environmentally sound, and socially acceptable methods to prevent and solve pest problems. IPM emphasizes pest prevention and provides a decisionmaking process for determining if, when, and where pest suppression is needed and what control tactics are appropriate.

Goal

The overall goal of IPM in schools and child care facilities is to maintain a safe environment for building occupants by preventing, reducing, or eliminating pest problems using safe and effective methods. The keys to IPM are:

- Identifying any current pest problems and knowing the most common potential pests that affect schools and child care facilities, both indoors and outdoors
- Knowing the specific resources (such as food, water, and shelter) needed by each pest
- Identifying the availability of those resources in and around the facility
- Eliminating or reducing access to those resources using a variety of methods (sanitation, exclusion, habitat modification)
- Inspecting and monitoring, and applying pesticides only when needed

IPM programs never use pesticides on a routine schedule or apply them to all surfaces. Pesticides are used only when and where inspection and monitoring indicate that the pest



Figure 2. Careful inspection for the presence of pests or evidence of pests is a critical component of a successful IPM program.

population has reached an unacceptable level. If a pesticide treatment is needed, the chemical, the application method, and the timing of the treatment are chosen to be effective against pests and least hazardous for humans. Chemicals are used in their least toxic form, and placement or application techniques (such as baits or crack-and-crevice treatments) are selected to minimize human exposure.

Components of IPM Programs

There are seven essential components of IPM:

1. Inspection and monitoring

Inspection helps find evidence of pests as well as conditions that are conducive to their presence (Figure 2). Monitoring helps detect pest problems early, before they have an opportunity to get out of hand. Keep a simple log of pest sightings. Be sure to include *when* and *where* pests were seen.

2. Identification

Correct pest identification is crucial to IPM. For pest management to be effective, corrective actions often must be tailored to the pests that are actually present.

3. Sanitation

The goal of sanitation is to remove sources of food and water, which pests need to survive and thrive.

4. Pest exclusion

Pest exclusion begins with a thorough inspection to locate possible points of entry, both indoors and on the exterior of the building. Once entry points are identified, steps are taken to make it more difficult for pests to enter.

5. Habitat modification

Habitat modification includes altering the environment to make it unfavorable for pest habitation.

6. Treatment of existing pest problems

In IPM programs, pesticides should be used selectively and only when and where needed. Many pests, such as most ants, crickets, millipedes, and other occasional invaders, pose no threat to people and can be removed by sweeping or vacuuming. Pesticides are sometimes necessary to eliminate heavy infestations of pests or those that pose a health hazard, such as fire ants or wasps. However, pesticides should never be applied on a routine basis or on a broad scale. Nonchemical control tactics, such as sticky traps and vacuuming, should be the first methods tried. For persistent or dangerous pest problems, use the least toxic chemical formulations, and apply these products in accordance with their label specifications.

7. Accurate record keeping

Keeping accurate records of past and current pest management activities is just as important as the other IPM components. Complete and accurate records aid in planning for certain types of seasonally recurring pest problems (primarily outdoors). They show what pest management tactics are being used or have been used previously and provide insight into what is working or what has worked in the past, as well as what is not effective for a particular pest problem.

Examples of records that should be kept include the following:

- · Inspection reports
- · Pest-sighting logs
- IPM work orders
- Notification registry
- Notification letters sent
- Pesticide labels and Material Safety Data Sheet (MSDS) documents for all pesticides and other pest control products used on facility grounds

NORTH CAROLINA SCHOOL IPM LAWS AND REGULATIONS

To reduce the impact of pests and pesticides on the health and well-being of children and other occupants of schools, the North Carolina General Assembly passed the SCHA in 2006. The SCHA requires that all North Carolina public schools:

- 1. Annually notify the students' parents and guardians, as well as school staff, of the schedule of pesticide use on school property. Under the SCHA, "pesticide use" includes both insecticides and herbicides.
- 2. Provide notification regarding an unscheduled or nonexempt pesticide application* on school grounds at least 72 hours (whenever possible) in advance of the treatment.
- 3. Implement an IPM program by October 1, 2011

Note: While the SCHA applies only to North Carolina public schools and not to private schools and child care facilities, all principals and facility directors and managers should adopt IPM programs.

* "Exempt pesticide applications" are those using EPA toxicity category IV products ("CAUTION" signal word not required) or products applied as crack-and-crevice treatments or as selfcontained baits.