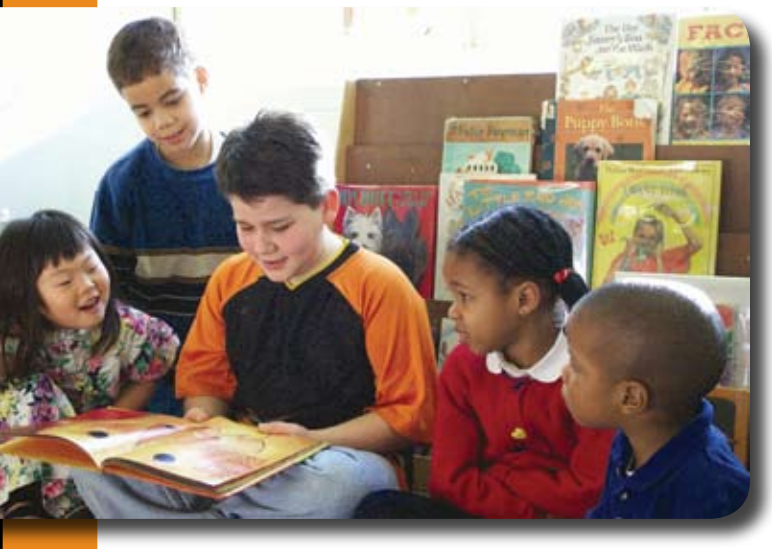
Reducing Pesticide Exposure at Schools

Summary

Pesticides play an important role in food supply protection and disease control, but they can also be harmful to human health. The term pesticide applies to insecticides, herbicides, fungicides, disinfectants and various other substances used to control pests. Pesticides are often applied at schools to help maintain sanitary conditions and suppress rodents and insect populations. Exposures and potential health risks to children and school staff can be reduced by avoiding routine pesticide applications through an Integrated Pest Management (IPM) program.

IPM is an alternative pest-control technique that manages and suppresses pests by preventing their access to food, water and shelter. These strategies can be more cost-efficient than traditional pest control options. [1] Using IPM at schools can reduce pesticide exposure of workers and students.



Pesticide Exposure at Schools

Exposure to pesticides at schools has been associated with illnesses among employees and students, although infrequently. Rates of illness from pesticide exposure at schools have been shown to be higher in school staff than in children because staff members are more likely to handle pesticides.[2] However, children may be particularly susceptible to pesticide toxicity because many of their organ systems have not reached developmental maturity.[3]

Exposures to pesticides can produce cough, shortness of breath, nausea, vomiting, headaches, and eye irritation.[2] There is also mounting evidence that long-term pesticide exposure in adults is associated with chronic health effects such as cancer, neurologic problems and reproductive problems.[4,5]

IPM can be useful to promote a safe learning environment

A Multifaceted Approach Needed to Manage and Suppress Pests

Although pesticides temporarily control pest populations, pests often return to the same location because food, water and shelter are still available. Consequently, additional actions are necessary to control pests in settings such as schools, workplaces, and homes. A multifaceted approach, such as an IPM program, is essential to effectively manage and suppress pests in any environment.

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Recommendations for Reducing Pesticide Exposure at Schools

Integrated Pest Management (IPM) is a pest-control alternative to routine pesticide use. IPM emphasizes several elements to successfully manage and suppress pests from an environment without relying on the regular use of chemicals. The use of IPM reduces the use of pesticides at schools compared to traditional pest-control options. To implement IPM at your school, you can start by developing a written policy and procedural guidelines for school pest management.[6] This policy, accompanied by its procedural guidelines, should incorporate the following 8 IPM steps:

1. **Appoint a pest manager**
   - The pest manager should be a knowledgeable person or company competent to carry out pest management duties, such as a member of the custodial staff, a company contracted to perform pest management at the school, or another appropriate person. Please see the sidebar on page 3 for more information on how to choose a pest manager
2. **Monitor for pest problems**
   - The pest manager should routinely inspect the building, including entrances, food/water storage sites and restrooms for pest activity.
   - The pest manager should respond to any pest complaints reported by students, staff, parents and others.
3. **Identify the nature of any pest problems**
   - The pest manager should find the origin of a pest problem (for example, food crumbs, cracks in walls) and identify the type of pest.

4. **Eliminate the source(s) of the problems without using pesticides**
   - The pest manager should modify the habitat by using methods such as repairing cracks and crevices, sealing doors, moving trash receptacles away from the building and ensuring sanitary conditions.
5. **If nontoxic methods fail or are impractical use pesticides following these principles:**
   - Use the least toxic pesticide that is effective and approved application techniques that minimize exposure (try to avoid using pesticides labeled "Warning" or "Danger").
   - Only trained and qualified workers should handle and apply pesticides. Read and follow the directions on the pesticide container. Ensure the pesticide applicator uses the appropriate personal protective equipment.
6. **Keep accurate records to document and evaluate the effectiveness of the IPM program**
   - Record the types of pests detected before and after any habitat modification or pesticide treatment.
   - Document measures taken to control the pest(s).
7. **Educate the school community about pesticides and IPM**
   - Involve and educate stakeholders, including administration, instructional and support staff, parents and students.
   - Distribute the school's pest-control management policy to school stakeholders periodically, for example, by including it in parent handbooks and teacher's manuals.
   - Educate students and teachers on how their behavior contributes to pest problems (food in classrooms/cubbies, gum under desks, paper clutter, etc.).
   - Involve students and staff in pest monitoring activities. A school employee should always be present to watch over all IPM service provider visits.
8. **Notify and provide reentry recommendations when pesticides are used**
   - Consider providing written notification of any upcoming pesticide application to all students, parents and staff.[†] At least 19 states have laws that require schools to provide some type of written notification before a pesticide application.[7] Many of these states require that notification be made at least 24 hours before an application.
   - Specify the type of pesticide to be used, if possible. The pest manager should be available to provide more specific information on the pesticide.
   - Post notices around the perimeter of the application area and leave these notices in place for 48 hours after the application.
   - Avoid spraying pesticides when children and staff are present. Pesticides shouldn't be sprayed during school hours or when school activities are taking place. Applications on Friday evenings are ideal if no weekend school activities are scheduled.
   - Restrict staff and students' access to the treated area until the pesticide has dried or as long as is recommended on the pesticide label.

[†]Baits or other types of gels and pastes in areas inaccessible to staff and students may be exempt from these notification guidelines.

References

1. EPA [2006]. Integrated pest management (IPM) in schools. Washington, DC: United States Environmental Protection Agency [www.epa.gov/pesticides/ipm/].
2. Alarcon WA, Calvert GM, Blondell JM, et al [2005]. Acute illnesses associated with pesticide exposures at schools. JAMA *294*(4):455–465.
3. National Research Council [1993]. Pesticides in the diets of infants and children. Washington, DC: National Academy Press [www.nap.edu/catalog.php?record id=2126#toc].
4. Alavanja MC, Hoppin HA, Kamel F [2004]. Health effects of chronic pesticide exposure: Cancer and neurotoxicity. Ann Rev Pub Hlth *25*:155–197.
5. Garcia AM [2003]. Pesticide exposure and women's health. Am J Ind Med *44*:584–594.
6. EPA [2006]. Pest control in the school environment: Adopting integrated pest management. Washington, DC: United States Environmental Protection Agency [www.epa.gov/pesticides/ipm/brochure/].
7. NASBE [2007]. State by state pesticide use. Alexandria, VA: National Association of State Boards of Education [www.nasbe.org/HealthySchools/States/Topics.asp?Category=C&Topic=7].

For More Information About Integrated Pest Management

The following are some Web sites that provide detailed information regarding pesticides, IPM, examples of model IPM programs, and further IPM resources for school officials and other interested parties.

Integrated Pest Management (IPM) in schools: Protecting Children in Schools from Pests and Pesticides
http://www.epa.gov/pesticides/ipm
General information on IPM programs in schools

California School Integrated Pest Management Program
http://www.schoolipm.info/
Comprehensive school IPM Web site that provides documents, links and other resources

The IPM Institute of North America, Inc.
http://www.ipminstitute.org/
Provides general information on IPM in schools and IPM STAR Certification

IFAS at the University of Florida: National School IPM Information Source
http://schoolipm.ifas.ufl.edu/
Provides specific information for parents, administrators, faculty and staff, and pest managers

National Institute for Occupational Safety and Health: Pesticide Illness & Injury Surveillance
http://www.cdc.gov/niosh/topics/pesticides/
General information on pesticide illnesses and surveillance in the United States

How to choose an individual/company to be the pest manager to perform IPM services*

- Ask for a written description of their IPM services. It should include regular inspections, regular service reports, IPM recommendations and use of least toxic pesticides.
- Does the individual/company promote routine use of sprays? If the answer is "yes," find another IPM service provider!
- Discuss current pest problems, their causes and management recommendations. Do they seem reasonable?
- Are their IPM recommendations consistent with those found in this fact sheet?
- Your IPM service provider should be able to provide documentation/proof of training related to pest identification.
- Your IPM service provider should be a willing and skilled educator.
- To help educate the school community on IPM, the IPM service provider should require that a school employee be present to watch over all service visits.

*Adapted from materials developed by the University of Arizona, Arizona Department of Environmental Quality, and the U.S. Environmental Protection Agency.

For More Information About Workplace Safety and Health

To receive more information about occupational safety and health topics, contact NIOSH at

Telephone: 1–800–CDC–INFO (1–800–232–4636)
TTY: 1–888–232–6348
E-mail: cdcinfo@cdc.gov

NIOSH Web site: www.cdc.gov/niosh

For a monthly update on news at NIOSH, subscribe to NIOSH eNews by visiting www.cdc.gov/niosh/eNews.

As part of the Centers for Disease Control and Prevention, NIOSH is the Federal agency responsible for conducting research and making recommendations to prevent work-related illnesses and injuries. Fact sheets describe how worker exposures to hazardous agents or activities can be reduced.

If you have a poisoning emergency, please call the Poison Control Center at 1–800–222–1212 or dial 911.

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DHHS (NIOSH) Publication No. 2007–150

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September 2007

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Centers for Disease Control and Prevention
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