Ants, Mice, Bed Bugs and Other Critters: Solutions to Common and Challenging Pests

Kathy Murray
Maine School IPM Program
Maine Department of Agriculture, Conservation and Forestry
School Environmental Health and Safety

Protecting our Future is YOUR Responsibility
Inside Your Schools

- Asthma is the primary cause of missed school days, over 13 million/year

- Pests and chemicals can trigger asthma and cause other long-term health problems.

- Pollution indoors is 3-5x higher than outdoors

Some Sources of Indoor Pollution

- Mice
- Cockroaches
- Dust Mites
- Pesticides
- Cleaning products
- Lab and art chemicals
Pests and Asthma

- Mice, cockroaches, and dust mites are asthma triggers.
- Academic performance is lower in schools with higher asthma rates.
Pests and Asthma

Average concentrations of mouse allergens are 4-5x higher in schools than in homes of children with asthma**

Pests, Asthma, and Absenteeism

Schools with more mouse allergens have more student absenteeism due to asthma

Keep Schools Rodent-free

- House mouse urine triggers asthma
- Deer mouse feces carries hantavirus (hemorrhagic fever).
Integrated Pest Management (IPM) = Best Management Practice

- Pest-proof building & grounds with good sanitation and maintenance
- Establish system of regular pest monitoring, reporting, records, communication.
- Use combinations of pest prevention and control for permanent solutions
- Review and evaluate continuously
**IPM:** Only effective when everyone is involved, not just the ‘bug guy’!

**Students & Teachers:** education, sanitation, monitoring

**Sports Staff:** scheduling, turf protection

**Contracted Pest Professional**

**Business Manager:** contracts, budgeting

**Custodians:** Sanitation, monitoring, pest reporting

**Maintenance Staff:** pest exclusion & monitoring

**Office Staff:** communication, records, scheduling

**Kitchen Staff:** pest prevention & monitoring
Custodians MUST take an Active Role!

- Communicate and Cooperate:
  - Pest monitoring and record-keeping
  - Pest removal,
  - **Sanitation** is key to pest prevention

- **90-100% of IPM is done by school staff** even if you have contracted pest control service.

- A Healthy Indoor School Environment is up to YOU!
Excellent Cleaning is Essential

- Keep equipment well maintained
- Use microfiber dust cloths, dry and wet mop heads.
- All surfaces scrupulously clean
- Inspect regularly
Work with Principal, Teaching Staff and Custodial Director/Staff to Keep Classrooms Food-free, Dust-free and Clutter-free
Inspect Thoroughly and Often

- Use flashlight, checklist and clipboard
- Look under, around, over equipment
- Focus where pests find food, water, hiding places
- Look for food, spills, soda cans, garbage, clutter, droppings, unfilled crevices, gaps, moisture
Find, Report and Seal Pest Entryways

Install and maintain door-sweeps to keep mice and insects out
Install and Monitor Mouse Traps in Kitchen, Food Storage, Inside Doorways
Kitchens

All food prep and eating surfaces (including in classrooms) must be cleaned and dried daily. No standing water.

Hang mats to allow floors to dry

Look UNDER equipment for waste, spills, dirt. Keep kitchens and cafeterias very clean.
Wheeled Equipment Makes it Easier to Clean Thoroughly and Monitor Pests
Organize Pantry to Allow Pest Monitoring and Prevention

- Promptly inspect, unpack, discard cardboard boxes
- Store food in pest-proof containers, up off floor
- Inspect and clean floors and shelving regularly.
- Wire shelving preferred
- Install and monitor mouse and insect traps
IPM for Rodent control includes:

- Inspect under/behind equipment & furniture, cupboards & cabinets, kitchens, break rooms, classrooms.
- Seal gaps under/around doors, eaves, utility penetrations.
- Floors and corners scrupulously clean
- Keep food in pest-proof containers
- Set and check traps when needed
- Keep records
Cockroaches

German Cockroach

American Cockroach

Inspect under & in appliances & electronic equipment, under floor mats, around dishwashers
Prevent and Monitor for Roaches

Place, check & replace sticky traps regularly

Place monitoring traps behind equipment & in cupboards

Seal gaps with silicone sealant to eliminate potential hiding places
Clean Floor Drains Regularly

Flies and Roaches Live in Dirty Drains!

Use:
• Enzyme cleaners eat the gunk
• Long-handled brush to clean inside drain
• Flush with hot water
Classroom Rugs, Furniture and Floors

Limit upholstered furniture. Limit rugs or establish cleaning protocols for them.

Provide space to separate children’s belongings to prevent pest spread.
Ants

- Identify the species by contacting
  - Cooperative Extension Office or
  - Your pest control service

Pavement ant

Email close-up photo to Extension office for ID
Vacuum up 1 tablespoon of cornstarch along with ants.

Wipe up ants and their invisible trails with soapy water.

Rinse and recycle beverage bottles promptly.

Clean up spills, crumbs and food.
Ant Management

- Follow ants to find entryways
- Seal cracks/crevices & entry points
- Licensed pesticide applicator may apply pesticide bait or bait station in areas inaccessible to children.
- Avoid sprays and granular pesticide applications.
Building Exterior

- Shrubs, grass, bark mulch at least 1 ft away
- Limbs 6 ft away
- No water intrusion, standing water, broken/missing screens, clogged downspouts, etc
Inspect Building Exterior Regularly

Check for:

- Wasp nests
- Unscreened vents
- Gaps around utility penetrations
- Water damage
- Damaged/disconnected gutters and downspouts
- Poor drainage
- Damaged/missing window screens
- Bird roosting
Stinging Insects

- Inspect eaves, playgrounds, sheds, etc, 2x/mo May-Oct.
- Destroy wasp nests if location poses risk of stings
- Seal openings on buildings & playgrounds before warm weather or after nest destroyed
- Control food, beverages, trash outdoors that attract wasps and bees.
Waste Management

- Place, don’t toss, bags into dumpster
- Containers clean, closed, 50’ away from buildings.

Lid should fit tight

Dumpsters 50’ from doors
Bed Bugs

- Work with nurse to educate family
- Provide bins or ziplock bags to isolate infested items
- Put infested items in clothes dryer (30 mins, hi heat)
- Guidelines available
Maine Center for Disease Control and Prevention and Maine Department of Education

Bed Bugs and Schools

What are bed bugs?

Bed bugs are small, brownish, flattened insects that feed on the blood of people while they sleep. Although the bite does not hurt at the time, it may develop into an itchy welt similar to a mosquito bite. Bed bugs do not transmit disease, but they can cause significant itchiness, anxiety, and sleeplessness. Bed bug infestations are also very difficult and expensive to control.

Usually, bed bugs will hide during the day and only come out to feed during the night. Unlike head lice, they do not live on a person. However, they can hitchhike from one place to another in backpacks, clothing, luggage, books and other items.
Pesticide Use is Restricted in Schools. Most States Prohibit Unlicensed Use of Pesticides

- Mouse poison
- Ant bait (including ‘cups’ and ‘traps’)
- Weed killers
- Organic and natural pesticides

- Know the pesticide laws in your state.
- Know your school’s chemical-use policies.
- Don’t allow unauthorized chemical use!
These are Pesticides, too

- Ant ‘Traps’/Cups
- Weed and Feed Lawn Granules
- RoundUP weed killer
- Poison-free™ brand wasp spray
- Organic Bug Sprays
- Bleach and Disinfectants
Use Disinfectants Selectively. Only Where Needed

Select Environmentally Preferable Disinfectants

- Activated hydrogen peroxide products

Avoid bleach.
Highly caustic.
Severe eye hazard, skin and lung irritant
IPM Record-keeping

- Pest Sighting Log (who, what, where, when)
- Inspection Reports
- Trap Captures
- IPM Actions Taken (what was done?) and Results (was the problem solved?)
- Pesticide Labels
Key Elements for Success

- Establish a written IPM Plan
- Collaborate and Communicate with administrators, custodial/maintenance staff, teachers, students, contractors, community.
- Provide Good Training for staff.
- No unauthorized pesticide use.
- Regularly Inspect and Monitor for Pests and Pest Prevention Needs
- Keep Records and Track Complaints
- When Pest Control is Needed: Select least-risk IPM solutions.
- Recognize and Reward staff, classrooms for job well done
Maine School IPM Program
ME Department of Agriculture, Conservation and Forestry

- Templates
- Training
- Tools
- Guidelines
- Newsletter
- Consultation
- Pest Identification

Kathy.murray@maine.gov
207-287-7616

www.maine.gov/schoolipm
More Resources

- University of Vermont School IPM: http://pss.uvm.edu/pd/schoolipm/
- NH Partners for Healthy School Environments: http://www.nhhealthyschoolenvironemnts.org/
Additional IPM Resources

- EPA (www.epa.gov)
  - Healthy SEAT (downloadable school environmental management program)
  - IPM (www.epa.gov/pesticides/ipm)
  - Indoor air quality (www.epa.gov/iaq)

- NE IPM Center (neipmc.org)
  - Searchable IPM resource database
  - IPM Checklists, Forms, Templates for Environmental Management System

- Informed Green Solutions www.informedgreensolutions.org