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EPA

Indoor Air Quality Tools for Schools Program

Indoor Air Quality (IAQ)

Questions and Answers from the Integrated Pest Management (IPM) in Schools Webinar

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Practicing and Administering IPM

#1 Q: We are starting our IAQ program using the IAQ Tools for Schools *Action Kit. Unfortunately, we have a large budget deficit projected for the 2010/2011 school year. We have two associates doing pest management for a school district with 60 facilities. Can you offer any hints on setting up an effective IPM program with two associates and limited budget?*

A: Many school districts share your situation. Here are some key strategies:

- Name an IPM Coordinator if you have not already done so. This individual needs to be able to negotiate cooperation among food service, maintenance, custodial, school health, grounds and other departments within the district.
- Connect with the national school IPM effort to build relationships for your coordinator and two associates with more experienced peers at other districts.
- Start with two or three of your most problematic schools to focus your initial IPM implementation. Invite an experienced school IPM implementer to help you assess those facilities for opportunities to reduce pest-friendly conditions and to help you get everyone on board. Take what you learn from these facilities to the rest of your buildings as time and resources allow.
- Be sure to set up an efficient, effective way for staff to report pest complaints so they are addressed quickly with long-term solutions. Resolving complaints right away is one of the best ways to gain support from those whose cooperation you need to run an effective IPM program.

#2 Q: With reduced budgets, are there effective alternatives to pesticides (e.g., herbicides)?

A: Long term, an IPM program focused on turf and ornamental plant health does not have to be more expensive. Key strategies to get there include increasing mowing height, resolving compaction by aerating when needed and encouraging thick turf by overseeding. The *School IPM 2015* plan provides more information and resources to minimize reliance on herbicides.

#3 Q: What is a good substitute for MSMA now that it is no longer available?

A: Replacements for MSMA include herbicides with the active ingredients quinclorac, dithiopyr, and fenoxaprop – p – ethyl. It is strongly recommended that you check with your state's cooperative extension service before purchasing and/or using any herbicide on school grounds. They can assist you in developing a turfgrass management program that uses mowing, aeration, overseeding, topdressing and/or selected herbicides to control weeds.

#4 Q: What about cleaners and sanitizers? What are the alternatives for using chemicals that are asthmagens?

A: "Green cleaning" is a well-developed approach to selecting and using reduced-risk practices and products. See a collection of links to resources at http://www.epa.gov/iaq/schooldesign/links.html#Cleaning_and_maintenance.

#5 Q: Where can I access a list of chemicals considered to be reduced?

A: See http://www.ipmcenters.org/pmsp/pdf/usschoolspmsp.pdf for a compendium of reduced risk products and sample products.

#6 Q: We're paying an exterminator to use borate gel. Wouldn't it be just as effective and less expensive to use boric acid crystals ourselves?

A: Perhaps the question should be, "Why is our pest management provider continuing to use gel baits?" Is this being done as a preventive measure or are pests, such as cockroaches, a problem in the school? If the school has a pest problem, what non-chemical methods are being used to manage the pests? Integrated pest management uses several techniques to control pest populations, and then continues to monitor the facility to keep it pest free.

Use of *any* chemical by an untrained person is dangerous. Although people claim boric acid is very safe to use, it can be quite dangerous and is often cited by Poison Control centers as a reason for poisoning. See the following Internet articles:

- http://www.umm.edu/ency/article/002485.htm.
- http://aappolicy.aappublications.org/cgi/content/abstract/pediatrics;26/5/884.
- http://www.ncbi.nlm.nih.gov/pubmed/17456100.
- http://www.beyondpesticides.org/pesticides/factsheets/Boric%20Acid.pdf.

#7 Q: What is your opinion of a botanical application to the exterior of a facility?

A: Botanical pesticides could mean herbicides (to control weeds) OR botanically derived insecticides (to control insects).

- Regular use of an herbicide to the perimeter of a school facility is not recommended; a new landscape maintenance solution should be determined. If very small sized, non-limestone pea gravel can be used on top of landscape fabric to keep weeds down, great. If turfgrass is allowed to grow up to the building, make sure it is cut regularly. An alternative plan of small shrubs and trees (kept at least 2' away from the building) and decorative mulch may also work for the site.
- Regular spraying of an insecticide around a school perimeter, using botanically or petroleum based chemicals, is not recommended. Regular checking and replacement of door sweeps will eliminate a large percentage of incidental insects, spiders and rodents from getting into the building. Keeping shrubs and trees 2' away from the building and seasonal raking of plant debris will minimize pest harborage areas. Remember that the outside of the school is also an ecosystem, the members of which can be studied in

science classes at all ages. The unnecessary spraying of chemicals will destroy the balance of this ecosystem.

#8 Q: What is a walk off mat?

A: Walk-off mats are short lengths of rubber or carpet-like mats placed inside entrances to minimize the amount of dirt, debris, water, snow, etc. tracked into the building. Generally, a walk-off mat should be the equivalent of 8-10 steps, but no less than 5 steps, in length to be effective. Outside conditions (e.g., dirt playground) may require longer mats, however.

#9 Q: What is the biggest problem, as far as chemicals, in schools?

A: Indiscriminant and unnecessary use of chemicals as well as inappropriate use of toxic products are perhaps the biggest problems for schools. School IPM does not eliminate the use of chemical products, but it does recommend a situation be managed first without the use of chemicals, if possible. It also recommends the proper selection of chemicals appropriate for the situation when a chemical application is *justified* – e.g., when the school has tried to solve the problem in a non-chemical way first. Of course, if an emergency situation arises, use of a chemical should be considered with nonchemical control options.

Other serious concerns in schools are the unlocked storage of chemicals and the stockpiling of unused or infrequently used chemicals. These could be found in science labs, in custodial closets, or in teachers' desks. Many states have free or reduced cost programs for proper disposal of unwanted chemicals.

#10 Q: The last speaker said they don't use aerosols – how are large bee/wasp nests eliminated?

A: Eliminating stinging insect nests in walls, on trees, or in the ground should always be done by a trained professional. There are a number of non-aerosol, registered and exempt-from-registration products that these professionals can use. There are also non-chemical approaches, including digging up ground nests and bagging aerial nests, that can be done effectively by professionals with the proper equipment and training.

#11 Q: Is there a good resource for exclusion techniques for older buildings? For example, we need to screen some floor drains in old labs to prevent cockroach entry (the traps may not be working properly – that will need to be fixed too!). What size should screens be to keep roaches out but still work well and not clog for drainage, or are there other suggestions?

A: For resources, start with EPA's "School IPM How To Manual", which can be found at http://schoolipm.ifas.ufl.edu/Florida/references.htm along with many other excellent publications. Before blocking any floor drain with a screen, remove the cover and vigorously clean the drain bowl with hot soapy water. Afterwards, pour enough water into the drain on a weekly basis to ensure the trap functions properly. Screens should only be used as a last resort because if the mesh is too small then drainage and other problems are created as well.

#12 Q: Do IPM programs typically address the presence of old furniture, pillows, etc. brought in by staff (another argument to reduce asthma-inducers)?

A: A district's IPM policy and /or IPM plan can state specific things to avoid, such as used furniture. In one Iowa school district, donations of old furniture caused an outbreak of brown banded cockroaches. After instruction in school IPM, the district decided to get rid of all donated furniture. In addition to

insects, rodents, dust mites and pet dander are often carried on old furniture – all things a school administration does not need to deal with!

#13 Q: What does the UV light do?

A: We typically use the UV light to discover mice urine. For example, if mice are hanging out in a stuffed couch and you lift up the cushions and shine the UV light, the urine droplets will fluoresce.

 # 14 Q: What is the best way to trap rats getting into storage sheds? The sheds cannot be made more air tight, and no food is inside – the rats are just looking for a warm, dry place to nest!

A: That will depend the location of the storage sheds, their surrounding environment and what other techniques you have tried, but most likely a combination of techniques can help. Refer to Chapter 12 of *Integrated Pest Management for Schools: A How-To Manual* at http://www.epa.gov/opp00001/ipm/schoolipm/chap-12.pdf/.

 # 15 Q: Four of our schools are surrounded by apple orchards. Some concerns have been raised about the possibility of "drift" during pesticide applications, or chemical leaching contaminating our nearby fields and playgrounds. The orchard owner is very responsible and has licensed employees applying the pesticides, herbicides and fungicides, but I continue to get questions about the safety of the children. How concerned should we be, and what actions should be taken as far as soil and groundwater testing?

A: Reach out to the cooperative extension of a university in your area to help you understand and assess the risks. If you are not already coordinating a schedule of pesticide application with the orchard owner to times and days of the week when children will not be present on school grounds, see what you can work out together. Remember, too, that your EPA regional representative is a good resource as well.

Controlling Lice

#16 Q: I am not aware of the serious pediculosis issue in schools – will you discuss?

A: Head lice are always a potential problem in schools and childcare facilities. Confirmed cases need to be managed properly to stop spread and avoid misuse of pediculicides and pesticides at home and in schools. See *School IPM 2015* for more detailed guidance, http://www.ipmcenters.org/pmsp/pdf/usschoolspmsp.pdf.

#17 Q: Short of not allowing children with confirmed cases of head lice to come to school, what is done to control head lice outbreaks in schools?

A: Prohibiting children with confirmed head lice from coming to school is not a universally accepted best practice. The American Academy of Pediatrics and the National Association of School Nurses (http://www.nasn.org/Default.aspx?tabid=237) discourage "no nit" policies in schools. There is no need to send students home. Parents of children with confirmed head lice need to be informed immediately and educated on appropriate responses. Head lice do not live very long off the host, and spread can be prevented by implementing common sense practices, such as not sharing hats and combs. See *School IPM 2015* for more detailed guidance, http://www.ipmcenters.org/pmsp/pdf/usschoolspmsp.pdf.

#18 Q: Where can I find de-licer in FDA databases?

A: According to the manufacturer, DeLicer is grouped by FDA with head lice combs and other nit removers. FDA does not review or approve these products as part of their registration process. The manufacturer is currently renewing DeLicer's FDA registration.

#19 Q: Is de-licer EPA registered, or is it Section 24b exempt?

A: EPA does not register head lice nit removal products such as DeLicer.

#20 Q: What are the primary target pests that the schools in Utah and Michigan deal with?

A: Ants (34 percent), rodents (27 percent), cockroaches (25 percent) and all others (14 percent) are the common pests we deal with in the Salt Lake City School District. Other Utah school districts may have different pest issues depending upon their geographic location and operational practices but that data is not available.

#21 Q: The Salt Lake City costs refer to how many schools?

A: The Salt Lake City School District has 36 schools with approximately 3.8 million sq. ft. which serve 24,000 students.

#22 Q: Is the expense of trap monitoring a separate budget for additional personnel or estimated amount using already employed personnel?

A: We use existing personnel to place and inspect monitoring traps on a monthly basis. Trap monitoring is a new task that has been added to the custodian's workload.

#23 Q: Why did EPA choose to use the pyramid model as opposed to the Monroe Model?

A: The pyramid was used as a pictorial of how IPM is defined and not really used to describe an IPM model. Using the pyramid, it helps us visualize that communication and outreach are large components of IPM, and that sanitation and mechanical/cultural components are very important too. Finally, pesticides are needed when these other tactics of IPM are not enough to control the pest populations. The Monroe Model is an approach to school IPM implementation. Used many places throughout the United States, the Monroe Model is a 22-step process, relying heavily on communication, partnership and sound pest management. Some of the key factors of the IPM program include: scouting; incentives; monitoring; assistance to administrators, parents and staff; evaluation and rewards. The Monroe Model reports at least a 70 percent reduction in pesticide applications, pest problems and reduction on pest control costs.

#24 Q: Once IPM is adopted by a school district, must all schools within the district participate? Is there a logo associated with IPM that would indicate a participating school?

A: As discussed in question #21, there are several different models that can be used to implement IPM at your school. One is the Monroe Model and another is the IPM STAR Program being offered through the IPM Institute of North America. There is no one particular logo identified with school IPM. The US EPA's Pesticide Environmental Stewardship Program (PESP), whose goal is to reduce pesticide risk, has partnerships with a number of organizations who are working to implement school IPM in our

nation's schools. Some of these programs have their own logos, and some of these groups use the PESP logo by virtue of their membership to the group.

Comprehensive Environmental Management

#25 Q: Florida has seen some of its IPM school programs revert quickly back to poor status. How important is the role played by the IPM Coordinator in school IPM programs?

A: The role the school district IPM coordinator plays is the most important role in a district-wide program.

There are three key things that must happen for an IPM coordinator to be effective:

1) Just as important as initial and *ongoing* training in spotting pest conducive conditions, monitoring for pests, practicing pest exclusion, and implementing IPM strategies for specific pests, the IPM coordinator needs to be trained on how to set up and implement a protocol for monitoring, reporting and action.

2) The protocol, along with clearly defined roles for custodians, teachers, maintenance folks and others, must be included in the district's IPM policy or plan.

3) The policy and the higher-ups (facilities director or superintendent or school board, etc.) must give the coordinator the authority to make things happen. Too often, a coordinator will report that a hole needs to be plugged, a door sweep installed, a kitchen drain scrubbed, a teacher ordered to cleanup extreme clutter, etc., and nothing gets done.

#26 Q: If you manage to prevent pest access by sealing window cracks, door sweeps, etc., you will also save on your energy bill by limiting air exchange. Does this have potential to have a negative impact on indoor air quality because of off-gassing from carpets, paints or other things in the classroom? Or are we assuming that each classroom has an adequate ventilation system besides the doors and windows?

A: The negative impact on indoor air quality from sealing the small openings to prevent pests is likely nil. The ventilation process generally occurs in all modes of HVAC system operation, e.g., heating, cooling and everything in between, and that implies that outside air is being delivered to the building while simultaneously being removed through the exhaust and/or relief systems of the system. Fewer openings in the building will merely ensure that most of the ventilation air will then follow the intended pathway, i.e., from the supply and return ducts or plenums to the exhaust/relief systems. Fundamentally, one has to assume that the building's HVAC system is working properly.

Resources

#27 Q: Where do I apply for pesticide applicator's licensing?

A: Usually it is your State Department of Agriculture. Often a State Department of Agriculture will have a Pesticides Division, and that's where you go for information on the type of license you need and how to get it.

#28 Q: Where can I find pest siting and recording follow-up forms?

A: You can access these forms at Iowa State's School IPM website, http://www.ipm.iastate.edu/ipm/schoolipm/articles, or at the University of Arizona College of Agriculture and Life Sciences website, http://cals.arizona.edu/urbanipm/schools/tool_box/index.html.

#29 Q: Are example IPM policies available?

A: Sample school IPM policies for various states can be found by entering the keywords "school IPM policy statements" into a search engine. An example can be found at Iowa State's website: http://www.ipm.iastate.edu/ipm/schoolipm/articles.

#30 Q: Are there published studies showing IPM achieving 70 percent reductions in pest complaints in regions where pests are more common, specifically in an urban southern state?

A: See: Gouge, D.H., M.L. Lame and J.L. Snyder. 2006. Use of an implementation model and diffusion process for establishing Integrated Pest Management in Arizona Schools. *Amer. Entomol.* 52 (3): 190-196. A number of the school districts participating in this study were in southern states, including Arizona and Alabama.

#31 Q: Where can you get a copy of the tool kit and how much does it cost?

A: In the webinar, there were a couple of discussions with regards to tool kits. One is the *IAQ Tools for Schools* Program's Action Kit. For more information on the Action Kit, visit: http://www.epa.gov/iaq/schools/actionkit.html. For a tool kit that you can use for school IPM inspections, there are many sources. One possible source would be through the IPM Institute of North America. Information can be found at: http://ipminstitute.org/school_ipm_2015/IPM_Evaluation_Tools_Web.pdf.

#32 Q: Are there specific resources available that would list non-toxic or less toxic pest control options for schools that do not have budget for pest control contractors?

A: *School IPM 2015* is the most up-to-date reference for reduced risk options. See http://www.ipmcenters.org/pmsp/pdf/usschoolspmsp.pdf.

IPM Contractors

#33 Q: If pest management is not done in-house, are there any commercial groups who use effective IPM practices?

A: Many pest management professional firms offer IPM programs to schools. Here is some general guidance for determining if your provider is delivering IPM: Are pests or evidence of pests frequently encountered? Are there obvious conducive conditions for pests? Is insecticide being routinely sprayed indoors? Are there obvious indoor rodenticide placements? Is pest control service limited to pesticide application, with little or no inspection of potential trouble spots? Are pesticides being used before all non-toxic means have been tried and shown to be unsuccessful? Are pesticides used that have "DANGER" or "WARNING" signal words on the label? Are many occupants dissatisfied with the pest control service? If the answer is "no" to all of the above, your pest control program follows an IPM approach and has a high probability of success. Thanks to Dr. Albert Greene, an entomologist with the US General Services Administration, for these tips. In 2002, Dr. Greene and a colleague published a

detailed report of their work reducing pest complaints and pesticide use in public buildings by 90 percent. See: Greene, A., and N.L. Breisch. 2002. Measuring integrated pest management programs for public buildings. *J. Econ. Entomol*. 95: 1-13.

#34 Q: If contracted pest management is terminated and managed in house, who applies pesticides when needed?

A: No one should apply pesticides in schools without proper training and licensing. Schools managing pests in-house should have trained and licensed staff, and/or contract with a professional firm for any applications that are needed.

#35 Q: How do you find a Green Shield certified pest company? What if none exist in the area?

A: For a directory of Green Shield Certified providers, see http://www.greenshieldcertified.org. If there are none in your area, you can request that your provider become certified.

Health

#36 Q: How does IPM benefit students with asthma?

A: Exposure to cockroaches, rodents and dust mites are primary causes of asthma and key triggers of asthma attacks. For a recent study reporting reductions in asthma allergens associated with cockroaches below clinically significant levels, see: Nalyanya, G., J.C. Gore, H.M. Linker and C. Schal. 2009. German cockroach allergen levels in North Carolina Schools: Comparison of Integrated Pest Management and conventional cockroach control. *J. Med. Entomol.* 46(3): 420-427.