




PESPWire

The Quarterly e-bulletin of EPA's Pesticide Environmental Stewardship Program Summer 2015

A Call for Community-Scale IPM

By Mark E. James, President of Urban Green, LLC (a PESP member), and board member of the U.S. Green Building Council and National Center for Healthy Housing

 As cities are seeking creative models for regenerating their aging housing and infrastructure, both public and private sector planners are expressing a renewed interest in creating healthy, pest-free communities. As the science and public policy behind neighborhood redevelopment has evolved, we have likewise seen an evolution in the concept of healthy communities. Gone are the days when a lead-free, asbestos-free home with potable water is sufficient to be called "healthy housing". Today's standards for healthy housing have expanded to include environmentally-friendly materials, indoor air-quality and the notion of a "pest-free" community.

The need to effectively manage an often out-of-control pest population has consistently been included in our collective notion of healthy neighborhoods. Images of rat-infested, low-income neighborhoods are engraved into the minds of many Americans. Far too often, we silently blame our urban poor for these conditions rather than placing a more proper critique of an aging infrastructure and housing stock that creates a perfect environment for pests to thrive. The most vulnerable to such poor conditions are our children, the elderly and persons with chronic health conditions. Perhaps even more upsetting is that we fail to acknowledge that low-income residents are rarely empowered to re-engineer the aged buildings where they live, work and go to school.


Leading the charge toward a healthy, pest-free building is the environmentally-friendly method of Integrated Pest Management (IPM). IPM seeks to reduce or eliminate rodents, cockroaches, and other pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks. A central strategy to IPM is the elimination of all free-standing water which is critical to sustaining life for these harmful pests. *continued on page 2*

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IPM Helps Rebuild New Orleans' Schools

By: Roy Fillyaw, MPA/MSES Candidate, Indiana University, and EPA School IPM Intern


CITY OF NEW ORLEANS

The devastation of Hurricane Katrina had multiple, complex impacts upon the City of New Orleans. One of the many challenges was a significant increase in pest-infested public buildings. Claudia Riegel, the director of the City of New Orleans Mosquito, Rodent, and Termite Control Board (NOMTCB), not only rose to conquer the problem of increased pests, but she did so by promoting integrated pest management (IPM). Riegel, a passionate entomologist, and her team worked tirelessly to promote this smart, sensible, and sustainable approach to reduce exposure to both pests and pesticides throughout New Orleans.

Their work, which began in 2006, was bolstered by a school IPM grant from EPA in 2012. This grant enabled efforts to focus on improving the quality of New Orleans children's learning environments. Although the grant funding ended in November of 2014, the work is ongoing for NOMTCB, and several schools in New Orleans have become beacons for others wishing to implement successful IPM plans.

Have a question on School IPM?
 Contact EPA's Center of Expertise for School IPM
 school.ipm@epa.gov | 844-EPA-SIPM
 (844-372-7476)

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Community-Scale IPM

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While the EPA has consistently led the healthy community discussion and the IPM school of thought, new partners such as the National Center for Healthy Housing and the U.S. Green Building Council are joining the discussion having each started national initiatives to encourage the development of healthy homes and buildings. These initiatives are based on our awareness that when left unchecked, common pests such as vermin, cockroaches and bed bugs can promote disease, exacerbate bronchial conditions like asthma and degrade indoor air quality within our homes.

In Baltimore, an interdisciplinary group of development, design and engineering professionals has formed an eco-district team that includes a regional EPA representative to explore methods of creating a district-scale, sustainable community with a large emphasis on health and IPM strategies.

As these initiatives begin to flourish, we should begin to recognize the simple truth that a healthy, pest-free building that is situated in the middle of a pest-filled community will not be healthy for long. With this in mind, a collective community-wide approach to Integrated Pest Management offers a potential solution to a community-wide dilemma.

As a developer of green affordable housing, Urban Green (a leader in the Baltimore Eco-District initiative and member of EPA's Pesticide Environmental Stewardship Program) has embraced the ideals of IPM and sustainability within all of its projects. In the past 2 years, Urban Green and a handful of other green housing developers have begun to consider expanding the boundaries of IPM to go beyond a single home or building to encompass an entire neighborhood or eco-district. Whereas IPM strategies are proving effective within a home, their impact at the community-scale (i.e. eco-districts) must also be considered.



URBAN GREEN

Similar to a planned community concept, an eco-district seeks to implement

a series of eco-friendly community renewal strategies that may include stormwater management, renewable energy, green infrastructure and, of course, pest control. Within an eco-district, IPM can be implemented at a community-wide scale that can yield much wider benefits than the traditional single-building approach.

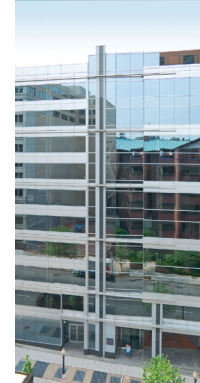
A district-wide IPM strategy is able to consider:

1. the elimination of free-standing water in alleys, sidewalks and roadways that provide rodents with easy access to water;
2. the reduction of foundation wall gaps that allow water intrusions and vermin access into buildings;
3. a strategy to replace impervious surface areas with bio-retention zones that can reduce sewer flooding
4. the creation of district-wide trash management programs; and
5. the judicious use of pest control products.

Central to the community-wide IPM concept is the goal of creating eco-districts that do not allow pests to flourish. Within these districts, education programs can encourage residents to implement healthy living standards while also creating jobs for residents who would be trained to manage and coordinate IPM activities.

As district-wide IPM strategies gain popularity nationwide, the EPA and its partners will need to train thousands of IPM representatives around the country to ensure the continued growth and success of the program. EPA is promoting IPM as the standard for pest management. This effort is making a difference in neighborhoods across the nation.

New Column: *Pest Prevention in Structures*



Pest Prevention in Structures is a new column dedicated to exploring the benefits and advancements in mechanical methods and design features to prevent and control pests. We hope you enjoy the first article, *A Call for Community-Scale IPM*, in this exciting new column.

Historically, the structural pest management conversation started with pests and ended with pesticides. Even when IPM was brought up in the context of green buildings, chemical choice often dominated the conversation.

While the judicious use of pesticides remains a tool in structural pest control, an important shift has been made to focusing on pest prevention and management tactics that provide long-term results.

If you are working or conducting research in this area, we encourage you to provide us articles that we will consider including in future issues.

Please submit article ideas to Lee Tanner at tanner.lee@epa.gov

We look forward to sharing cutting-edge information in this growing area.



Sharing the IPM Message with School Nurses



EPA recently took its School IPM message directly to school nurses.

The Center of Expertise for School IPM partnered with EPA Region 2 (NY/NJ) and Region 3 (Mid-Atlantic) to host a booth at the National Association of School Nurses Conference held in Philadelphia, PA on June 23-26, 2015.

The conference provided an excellent venue to reinforce the principles of School IPM to well over a thousand school nurses.

School nurses are key advocates for healthy learning environments. In that role, they can be valuable advocates for Integrated Pest Management (IPM) because it reduces children's exposure to pests and pesticides. The attendees were appreciative of the Agency's participation in the annual meeting and of the importance EPA places on the role of nurses in having IPM more broadly adopted by schools.

School nurses found IPM, asthma, indoor air quality, chemical awareness, and bed bug materials at the Agency's booth. A looping slide presentation on bed bugs served as the backdrop to draw attention.

Throng of nurses made their way to the EPA booth when the exhibition hall opened. The constant stream of visitors over entire conference took with them over 8,000 documents. Another 4,000 were mailed after the conference to the more distant school districts. All materials were well received, especially the new *Bed Bugs in Schools – Guidance for School Nurses*, created specifically for this audience and debuting at the conference.

In addition to the EPA booth, Marcia Anderson of the Center of Expertise presented two posters on *Bed Bugs in Schools: The Role of School Nurses* that were attended by over 200 nurses. The poster and booth were used to promote the Agency's School IPM Webinar Series. Over 120 nurses signed up to receive information on next season's offerings.



Lynne Gregory of EPA Region 2 discusses bed bugs and School IPM with visitors to the EPA booth.

To maximize the networking opportunity, Marcia Anderson accepted an invitation from the Texas school nurse delegation to promote School IPM, discuss bed bug challenges, and provide EPA Regional contacts in their evening meeting.

For additional information on School IPM as it relates to nurses, please contact the Center of Expertise at school.ipm@epa.gov or toll-free at 844-EPA-SIPM (844-372-7476).

The Center of Expertise would like to thank Regions 2 and 3 for all of their efforts in preparing for, participating in, and following up on the conference.

Bed Bug Flier for School Nurses

A new informational flier on bed bugs, developed specifically for school nurses, debuted at the June 2015 National Association of School Nurses Conference. Over 700 copies of the flier, developed by the Center of Expertise for School IPM with input from the Agency's Bed Bug Workgroup, were distributed at the conference.

The flier outlines procedures for school nurses to follow when presented with bed bugs and the importance of developing IPM-based bed bug action plans. The flier covers a checklist for school nurses if a bed bug is discovered, what to tell parents, bed bug hot spots in schools, and an overview of the elements involved in a successful bed bug management plan.

Meeting the need of schools for such IPM-related information a key function of the Center.

For a copy of this flier (Publication number EPA 730-F-15-001), please contact the Center of Expertise at school.ipm@epa.gov or toll-free at 844-EPA-SIPM (844-372-7476).

Bed Bugs in Schools
Guidance for School Nurses

Managing bed bugs can be a major challenge for schools nationwide. School nurses are often called upon to provide vital information to students, parents, teachers, and administrators. These tips on identifying, managing and preventing bed bugs will help you to effectively respond if bed bugs appear in your school.

School Nurse Checklist

If you think you have spotted a bed bug:

- Collect the bug and keep it intact for proper identification.
- Discreetly remove the student from class but do not send him/her home or exclude from school.
- Check the student's clothing and belongings for bed bugs.
- Inspect the area around where the bug was found.
- Tell the child's parents about the bed bug sighting.
- Provide the student and parents with information on bed bug control.
- Oversee the case until the problem is resolved.

What to Tell Parents

- Having a bed bug infestation does not mean a home isn't clean.
- A true bed bug infestation is unlikely in a school.
- It is not necessary for the school to close because of bed bugs.
- Students should limit the items they bring to school.
- Students should store school supplies in protective boxes at home and not under or near beds or couches.

Successful Bed Bug Management

- Uses a combination of strategies such as prevention, inspection, vacuuming, steam or heat treatment, and, if needed, pesticides.
- Recognizes that pesticides alone may not eliminate bed bugs.
- Recommends placing clothes in a clothes dryer on high heat for at least 30 minutes to kill any bed bugs on the clothing.
- May include professional steam or radiant heat treatments.

Bed Bug Hot Spots in Schools

- Student and staff closets, lockers, coats and backpacks.
- Faculty lounges, classrooms or other areas with upholstered furniture or coats.
- Dormitories or other sleeping areas.

For more information on bed bugs go to: www.epa.gov/bedbugs

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School IPM in New Orleans

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While Louisiana has school IPM legislation, many New Orleans schools were lacking strong IPM plans, and did not have effective IPM programs. The schools were also lacking strong bid specifications for general pest and termite control. Riegel and her team attacked this problem with a multi-pronged approach that included demonstration/pilot schools, the creation of sample IPM plans, the creation of general bid specifications, and numerous workshops, seminars, and speaking engagements.

Riegel and her team were faced with many challenges, including changing people's expectations of pest management. Conventional pest management, which typically involves scheduled pesticide application and otherwise only coming into contact with pest control professionals when problems arise, looks very different than IPM. Implementation of the proactive approach of school IPM is unique and requires educational outreach and working closely with school personnel. "There needs to be a big human component," according to Riegel, and "with small modifications, it can go a long way."

Demonstration schools were a major part of the project's effort. Three schools were targeted in New Orleans, each being at a different phase of existence, with hopes to show how successful IPM could be in a variety of situations. John McDonogh High School, a school existing for over a century, Henry Schaumburg Elementary, a school damaged by a hurricane, and Mildred Osborne Elementary, a newly constructed school, would each show the benefits of IPM for a school building at any life stage.

In the new building of Mildred Osborne Elementary, the implementation of IPM became an example of how a proactive approach can keep pests to a minimum without the use of many pesticides. Maintaining sanitary buildings and overall good school condition proved to be successful with minimizing pests.



Henry Schaumburg Elementary offered a chance for IPM to display an efficient elimination of

pests from a school which was flooded during the hurricane and recently restored. Following the devastation caused by Hurricane Katrina, the school experienced many issues with ants, mice, termites, and drain flies. Following implementation of the IPM program, red imported fire ants and drain flies were eliminated from the school, and the school saw a 100% reduction in pesticides used indoors.

Perhaps the biggest challenge facing the team was John McDonogh High School, a building that has existed since 1898. Extensive issues faced the implementation of an IPM program, such as rats thriving in the building and affecting the daily activities of students and employees. Riegel and her IPM team were not deterred, and sought to successfully implement IPM at the school.

The measureable outcomes of the work at John McDonogh High are impressive. There was a 100% reduction of liquid pesticide use, a 61% reduction in gel bait use, and a 93% reduction in rodenticide use. While notably reducing the use of pesticides, there was also an impressive 100% elimination of rodents found in the school. From 2012 to 2014, the school saw an improvement on the IPM Cost Calculator from a "D" to an "A." For more information on the IPM Cost Calculator, visit www.ipmcalculator.com.

John McDonogh High is a glowing example for schools nationwide successfully implementing IPM as their approach to pest management. The school presented a worst case scenario which IPM helped to improve. When asked if these results can be replicated, Riegel proclaimed, "If it can be done here, it can be done anywhere!"



The work done at John McDonogh High received national attention from NPR and Jim Jones, EPA Assistant Administrator for

the Office of Chemical Safety and Pollution Prevention. Additionally, the Mayor of New Orleans, Mitch Landrieu, recently acknowledged the improvement of the city's school facilities in his State of the City address. IPM has contributed immensely to the school improvements. IPM techniques are now standard practice within Mildred Osborne Elementary, Henry Schaumburg Elementary, and John McDonogh High, and the schools can serve as models for others who are considering starting down the IPM road.

The results of this grant and the work Riegel and NOMTCB have done expands well beyond three successful schools. State regulators are actively supporting school IPM, and schools throughout Louisiana are now approaching NOMTCB for pest control assistance. NOMTCB staff are asked to speak at training events across the state. NOMTCB has become a resource for both schools and for the pest management industry.

With the help of just one EPA school IPM grant, school IPM in New Orleans has progressed by leaps and bounds. School IPM is helping to rebuild New Orleans. In turn, New Orleans is becoming a stellar example for how to successfully implement IPM to create healthier school environments.

Apples for the Big Apple: *Northeast Growers Manage Pests to Produce Quality Apples*



Photograph: Jeff Kubina, flickr.com

Apple growers battle pest problems on a continual basis. To pests, such as moths, mites, and fungus, an apple orchard is a place to eat or lay eggs. Because the ecology in every orchard is different, pest conditions and circumstances are different for every apple grower, so controlling pests through Integrated Pest Management (IPM) makes sense.

IPM has become more and more engrained in apple orchard pest management in the Northeast over the past 30 years because most Northeastern apple growers live right on their farms. It is in their best interest to keep the land and water as clean as possible. Apple growers have found the most effective way to control their pests is by using scientific based practices like IPM, that have positive long-term effects on the orchard that work together rather than separately.

Growers monitor their orchards weekly from the beginning of spring through the entire growing season, to determine pest pressures. The growers and crop consultants become intimate with their location, learn about past disease and pest pressures, and learn the ecology of the orchard. Admittedly they learn something new every year.

There is also an economic impact when farmers use IPM. They stand to reduce their two highest bills – chemicals (pesticides and fertilizers) and fuel - when they following the five components of IPM. These components are: 1) prevent pests, 2) identify the specific pests present, 3) set economic thresholds for each pest as a decision making tool, 4) monitor for pests and their damage, and 5) use a combination of management tools.

Maintenance and sanitation are key parts of preventing pests in apple orchards. Every year, growers follow a rigorous routine in the fall by cleaning the orchard floor, cutting suckers off tree trunks, and clearing weeds from under the trees. Fallen leaves, grass clippings, and winter pruning's are mulched and returned to the soil. By chopping the leaves into small bits, they will decompose more quickly and neither the pests nor diseases will have anywhere to overwinter. This reduces the pest populations that will be in the orchard in the next spring. The only thing that is removed are the apples.



Just by being particular about maintaining this degree of sanitation, growers have been very successful in reducing the presence of apple scab, one of the most persistent pest problems in the orchard. Apple scab comes from a fungal spore that overwinters on the ground. It normally requires a fungicide (anti-fungal pesticide) to be sprayed in order to arrest its development. Those spores go on the fruit and make leathery-brown scabs that blemish the fruit. Blemished fruit is considered to be of lower quality, so its value is reduced leading to an economic loss to the grower.

Apple scab also damages the tree because it creates lesions on the leaves that spread and interfere with photosynthesis. A bad scab infection can shut down a whole tree and spread quickly throughout the orchard. So orchard sanitation is a very important part of scab control.

Other pest prevention methods include planting pest-resistant varieties and nutrient replenishing. Just like people, apple trees need specific nutrients to keep them healthy to produce quality fruit. When hundreds of bushels of apples per acre are removed annually, that means that a lot of nutrients are removed from the orchard soil. Monitoring soil nutrient levels and adding nutrients as needed is an essential component of IPM. Nutrients are added either directly to the soil or through foliar application, by spraying on the leaves of trees. Apple trees are unique ecosystems and need a wide range of macro nutrients including nitrogen, phosphorous and potassium.

Many soils in the northeast have high phosphorous levels and adequate nitrogen levels. If nitrogen is needed, it is most often applied through foliar application. Potassium is the macro nutrient that needs to be replaced on a regular basis. By running soil tests and recording the number of bushels of apples that were removed, growers can calculate how much potassium must be added back to the soil. Micronutrients, such as calcium, magnesium, zinc, boron, and manganese, also need to be replenished. These are all added through foliar applications.

You can see northeastern growers discuss using IPM to prevent pests in a [3-part video series](#) by the New England Apple Association.

Why should we care about pest prevention and the judicious use of pesticides on our apples? Apples are an extremely popular fruit, whose consumption is ubiquitous across the nation. Northeastern apple orchards cover close to 100,000 acres. Northeast apple growers are able to provide high quality apples at reasonable prices by utilizing the scientifically-based best practices of IPM.



Biopesticide News in Brief

2015 Canadian Biopesticides and Minor Use Pesticides Priority Setting Workshops

*Modified from report by Shirley Archambault, and Leslie Cass, Agriculture and Agri-Food Canada
Originally published in the [IR-4 Newsletter Vol. 46 \(2\)](#)*

The 13th annual Canadian Biopesticides and Minor Use Pesticides Workshops were held from March 24-26, 2015 in Gatineau, Québec. The 190+ participants included growers from Canada, US and Mexico; registrants from Canada, US, Japan, and the Netherlands; crop specialists and researchers; Canadian and Australian regulatory officials; and US IR-4 program representatives. These workshops select, through grower consensus, top insect pests, diseases and weeds and the pesticide solutions for their control, and up to nine biopesticide products as candidates for registration in Canada.

Forty-two crop-pest priorities were selected to address issues such as spotted wing drosophila, mites, nematodes, powdery mildew and bacterial diseases. If similar priorities are selected by the US stakeholders at the IR-4 Food Use Workshop, in September 2015, some of the priority issues may be addressed as joint (US-Canada) projects. Of the nine biopesticide products identified as priorities for registration, four will be selected to receive regulatory support toward first time registration or major new use site registration through Canada's Pesticide Risk Reduction Program. Information on integrated approaches and gaps for management of key bacterial diseases including fireblight in apple, canker in cherry, and bacterial diseases affecting field vegetables and strawberries were presented by research and crop specialist experts.

With limited new options coming and tendency for pathogens to develop resistance, there was agreement integrated pest management approaches will be of critical importance for long-term management. This will include incorporation of products and production practices with multiple modes of action, along with cultural and sanitation practices and use of resistant varieties. If you wish to receive the lists of selected priorities please contact Shirley Archambault (Shirley.archambault@agr.gc.ca or visit www.agr.gc.ca/eng/?id=1289590771112)

Attract-and-Kill for Vector Control

*by Karl Malamud-Roam, IR-4 Public Health Pesticide Program Manager
Originally published in the [IR-4 Newsletter Vol. 46 \(2\)](#)*



Mosquitoes and other arthropod vectors of human disease are small, dispersed, mobile, and hard to target with pesticides. In addition, chemical control of vectors using area-wide pesticide applications is increasingly restricted because of risks to pollinators, endangered species, and other non-target species. Regulators generally consider that the human risk associated with vector control practices is minimal. Public concerns about pesticides are considerable therefore vector control programs strive to minimize pesticide drift into inhabited areas. Larval mosquitoes have a more limited distribution than adults, but are

often in inaccessible sites. For all of these reasons, there has been a recent surge in interest in “attract-and-kill” technologies in vector control.

These approaches to vector control use the mobility of adult mosquitoes as part of a strategy which attracts pests from a wide area to a trap or other “kill zone.” In recent years, attract-and-kill systems have become increasingly practical, and many people are familiar with the devices which trap and kill female mosquitoes while they seek blood meals. A previous IR-4 Newsletter article ([Vol. 45 No. 1 Winter 2014](#)) described attractive toxic sugar baits that target male and female adult mosquitoes as they search for carbohydrate food sources.

Another approach to trap-and-kill targets females hunting for egg-laying (oviposition) sites, and then killing them or their young. Female mosquitoes lay eggs every 3-7 days, up to eight times. Oviposition requires female mosquitoes to search for areas in their habitat suitable for the survival of their young, and they find these sites largely through chemical cues. The hope is that effective oviposition attractants will lure mosquitoes to devices which trap the adults, poison the adults, trap or poison the juveniles after oviposition, or dose the adults with insect growth regulators which they will carry to other oviposition sites. Future articles in this series will review each of these approaches and the research that IR-4 is conducting to evaluate them.

Upcoming Events

[First Global Minor Use Priority Setting Workshop: Seeking Pest Management Solutions for Growers Around the World](#)
Sept. 20-22, 2015
Chicago, IL

[IR-4 Food Use Workshop](#)
Sept. 22-23, 2015
Chicago, IL

[IR-4 Biopesticide Workshop](#)
Sept. 24, 2015
Chicago, IL

[PestWorld 2015](#)
October 20-23, 2015
Nashville, TN

[Entomology 2015, Synergy in Science: Partnering for Solutions](#)
November 15-18, 2015
Minneapolis, MN

[XXV International Congress of Entomology](#)
September 25-30, 2016
Orlando, FL

Grant Opportunities

EPA Solicits Proposals to Increase Schools' Adoption of IPM Using Educational Networks

EPA's Office of Pesticide Programs is soliciting proposals for a cooperative agreement, *Using Educational Networks to Increase Schools' Adoption of Integrated Pest Management*, to provide education, training, resources and technical assistance to increase IPM implementation in kindergarten to 12th grade public and tribal schools nationwide. The grantee will conduct a national program, using its existing organizational structure and established relationships with school districts throughout the United States, to further IPM adoption by schools. EPA intends that the recipient of the award will:

- Collaborate with entities through existing educational networks to promote the benefits of IPM to public and tribal school districts and offer them educational information, training and technical support to increase their adoption of IPM; and
- Utilize established educational networks to increase the demand for school IPM across multiple geographic areas.

The Agency expects to fund a single two-year cooperative agreement for up to \$250,000. Proposals are due on August 9, 2015. Additional information on this solicitation is available on Grants.gov under Funding Opportunity Announcement EPA-OPP-2015-006. If you have questions, please contact Cara Finn at finn.cara@epa.gov.

Proposals Requested to Assess the Economics of IPM in Schools

EPA's Office of Pesticide Programs is soliciting proposals for a cooperative agreement, *The Economics of School Integrated Pest Management*, to research and analyze the economics of integrated pest management in K-12 public and tribal schools in the United States. Currently, the only materials available on the economics of school IPM are anecdotal. The lack of scientifically robust economic information creates uncertainty within school districts about the costs and benefits associated with establishing and sustaining IPM programs. This project aims to remove this uncertainty by providing an unbiased assessment, supported by robust data, on the economics of IPM programs in several different school settings.

EPA intends that the recipient of the award will develop and present a robust and unbiased short- and long-term economic assessment of implementing an IPM program in several school settings (urban/rural/large/small) through research, data collection, and analysis.

The Agency expects to fund a single two-year cooperative agreement for up to \$300,000. Proposals are due on September 9, 2015. Additional information on this solicitation is available on Grants.gov under Funding Opportunity announcement EPA-OPP-2015-007. If you have questions, please contact Cara Finn at finn.cara@epa.gov.

