



# PESPWire

The Quarterly e-bulletin of EPA's Pesticide Environmental Stewardship Program Spring 2014

## ProBest Pest Management: IPM in Unique Settings



An organization's commitment to integrated pest management (IPM) is about more than just talking the "green" talk; it's about walking the walk and integrating those principles into everyday functions. Gold PESP member ProBest Pest Management, located near Phoenix, Arizona, strives to demonstrate its commitment to pesticide risk reduction and IPM by offering pest control services that focus on anticipating and preventing pest activity and infestation. In business since 1981, ProBest focuses on preventative measures prior to judiciously utilizing pesticides. ProBest has advocated for this preventative approach with their clients, enabling them to bring integrated pest management to a wide variety of unique situations.

Keith V. Birkemeyer (a.k.a Dr. Bug), owner of ProBest, has been in the business of pest management for over 20 years. An Associate Certified Entomologist (A.C.E.), he turned to utilizing IPM strategies after witnessing the use of wettable powders and compressed sprayers inside homes. In an email to PESPWire, Keith stated, "I'd always thought this can't be good... wettable powders leaving a residual of powder on the carpeted areas and baseboards, and compressed sprayers putting some of the product airborne." Keith was drawn to IPM because it gave him the option to control pests with or without pesticides. For example, in a situation where a customer has scorpions gaining access to a home with a newborn baby, ProBest sealed the home to prevent access instead of applying pesticide throughout the house, and then used pest control products only where the scorpions and their food hide.

Sometimes, though, IPM can be a tough sell to clients. "Some people think that if you don't spray inside you are cheating them of your service", noted Keith. "Once we explain how targeting the food and harborage areas typically solves infestations, and that we will come inside if that doesn't solve the problem, customers are more receptive to our approach." *continued on page 2*

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## EPA Awards School Integrated Pest Management Grants

The U.S. Environmental Protection Agency (EPA) has announced three grants to facilitate integrated pest management (IPM) practices in schools. This funding will help reduce student's exposure to pests and pesticides in the nation's schools, while saving money, energy and pesticide treatment costs.

"Children are among the most vulnerable members of our society, and it's EPA's job to protect them from harmful chemicals," said James Jones, Assistant Administrator for the Office of Chemical Safety and Pollution Prevention. "We aim to help schools implement sustainable pest management practices to create a healthier environment for our children and teachers."

The IPM approach has the potential to reach 15,000 school districts nationwide, improving the health and well-being of 49 million children. IPM measures help prevent pests from becoming a threat by taking action to address the underlying causes that enable pests to thrive in schools. These actions, such as repairing water leaks, adding weather stripping to windows, and installing door sweeps, reduce pesticide use and treatment costs while reducing water and energy costs.



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## IPM in Unique Settings

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ProBest's first line of defense is to locate entry points and seal them. If this is unsuccessful and pests still show up, "we use dusts and gels that can be placed within voids and hidden away from people".



*ProBest seals holes such as this one found at Precious Treasures with caulking and either steel or copper wool to prevent pest access.*

ProBest has had a great deal of success in utilizing IPM methods to treat pest problems for their customers. For example, they have used encasements/mattress covers as a way to manage bed bugs. Keith noted that "if bed bugs can't find a hiding place, they are easier to find and treat". They also found that glue boards, a staple of IPM programs, were a great monitoring system to gauge the extent of an infestation.

Not one to shy away from a challenge, ProBest took on the complexities of using IPM techniques in unique settings such as child day care centers and wildlife rehabilitation facilities. Specifically, they have worked with Precious Treasures Child Care in Chandler, AZ and Liberty Wildlife in Scottsdale, AZ. Both daycare centers and wildlife rehab facilities pose novel challenges to pest management.

Due to the sensitive environment of a daycare center, ProBest works closely in partnership with their daycare customers to ensure the safety of the children and staff from pests and the misuse of pesticides. As with other childcare centers and settings, at Precious Treasures pest control is a two way street.

Child care centers work with ProBest because they understand the importance of pest prevention prior to utilizing pesticides. Keith explained, "Over the years we have discussed [with the center] how German Roaches love to hide in boxes, so their staff take the boxes apart and store the food in containers if possible. When children

spill things we ask them to clean up the spills ASAP, and this helps to prevent ants. We also provide fact sheets they can send home to prevent the spread of bed bugs."

Kay Woods, founder of Precious Treasures, appreciates the pest control approach taken by ProBest. "ProBest has been very proactive with informing Precious Treasures Childcare and our parents about the pros and cons regarding pest control chemicals, treatments, use of pesticides and regulatory requirements", praised Kay. "ProBest pre-schedules ALL of our pest control services on specific dates and times to eliminate children or staff contact with products. ProBest also provides Precious Treasures with a monthly awareness newsletter, emergency outbreak alerts and notifications, an itemized list of products used at our center, and acts as a liaison for preventative care by being an information resource for our staff, children, and parents."

At Liberty Wildlife, which focuses on rehabilitating wildlife native to Arizona including birds of prey, secondary poisoning of the raptors from rodenticides is a great concern. ProBest addressed this and other unique challenges through IPM.

Pest control at a wildlife rescue center can be especially tricky due to the pest-conducive conditions that can exist. ProBest has been offering their services pro-bono to Liberty Wildlife, and tackled a challenging rodent infestation with IPM.

Environmentally sensitive pest control is important to Liberty Wildlife, as Terry Stevens, their Operations Director, explained through ProBest, "Part of our educational message is environmental protection and sustainability. Since we have a large contingent of rehabbing and permanent resident wild animals

in enclosures that are largely open-air, rodent and pest control is a large consideration. Our rodent population has all but been eliminated through the efforts of Keith and his staff at ProBest in the face of some rather unique problems presented by our facility. ProBest is constantly working with us and trying to find better and safer ways to control rodents in a very tough and often unique venue."

ProBest approached the rodent infestation at Liberty Wildlife by starting with how food was stored, as the ability of the rats to access food had allowed the rat population to build up. Once ProBest eliminated the food source, they turned to reducing the infestation through the use of snap traps. "We decided not to use any type of rodenticides, as we were greatly concerned about secondary impacts. If the rats digested bait and then ended up within reach of one of the birds of prey, which could have harmed the rescued raptors, whereas snap traps allowed us to capture and remove without using any rodenticides," described Keith. "We also investigate any products prior to use, as some products may be more hazardous to birds or specific wildlife."

In addition to being a Gold Member, ProBest has earned the GreenPro designation, allowing them to qualify for LEED points. Keith Birkemeyer and ProBest are constantly striving to sustainably offer pest control services that are effective, yet low impact on human health and the environment.

Companies like ProBest strive to make IPM a cornerstone of their pest management practice.

It's that commitment and dedication that help expose more people to IPM techniques, and fewer people to excess pesticide use.

[www.callprobest.com](http://www.callprobest.com)



*Keeping trash cans clean and raised off the ground on wooden pallets goes a long way in eliminating a food source for rodents at Liberty Wildlife. Probest also recommends that plastic trash cans be replaced with metal once they become worn, as rodents can chew holes in plastic.*

## School Nurses Keep Kids Healthy By Keeping Pests Away

EPA's vision is for all of the Nation's children to be covered by a verifiable and ongoing school integrated pest management (IPM) program. EPA has developed its school IPM program using meaningful, sustainable, and measurable elements that offer tangible results. Since 1996, EPA has invested over \$3.2 million in extramural resources to support over 40 demonstration, outreach, and educational projects on school IPM. This investment has yielded many successes and opportunities to collaborate with national organizations and other kid-focused experts.

Beyond extramural resources, EPA has also been building partnerships and collaborations that promote and support school IPM, demonstrate the value of school IPM, and provide information about the tools available to schools interested in developing their IPM program. One such collaboration is with the National Association of School Nurses (NASN).



Photo: NASN

Both EPA and NASN share similar goals: keeping students healthy, safe, and ready to learn. In challenging financial times, building collaborative partnerships can go a long way in promoting healthy schools when funds aren't available.

EPA is placing an emphasis on wholesale activities that create demand for school IPM programs, leverage resources, and expand its school IPM allies. In the wholesale approach, EPA is working with larger organizations,

states, universities, and non-governmental organizations to advocate for school IPM adoption.

As school IPM is a collaborative effort, building partnerships results in the biggest gains in schools' adoption of verifiable, sustainable IPM programs. Working together, EPA and allies like NASN can recruit and enroll new schools and large influencing organizations to join the network so that increased adoption of SIPM will be realized.



EPA is collaborating with NASN to offer webinars on school IPM that will highlight the important role school nurses play in promoting IPM. Periodically, EPA also plans to share ideas and examples of school IPM strategies for schools to adopt through NASN's Weekly Digest. Finally, EPA plans to attend their national meeting to ensure further and continued collaboration.

EPA and NASN collaborated on an article for the *NASN School Nurse* journal that is expected to publish this summer or fall. Here are excerpts of the article that explain how school nurses play a role in an IPM program.

*Chronic conditions, such as asthma, may impact the student's ability to stay in school and actively learn. The school nurse plays a vital role in our children's school environments and is a key member of the team that can lead health advancements. The environmental health experts in schools are the school nurses who provide guidance about health and assessment of risks.*

*School nurses contribute to the school's action plans for reduction of pests of public health importance. School nurses continually collaborate with students, school staff members, parents, and community members to keep students safe and to promote healthy habits conducive to learning.*

*As part of their critical role, school nurses should be engaged in the communications and decision making loop regarding pests issues and any pesticides applied on school grounds.*

*The school nurse can play a critical role in helping to prevent the triggers for chronic ailments that may affect learning. These triggers include pests and the consequences of their presence.*

*By providing for the safety and care of students and staff, the school nurse can advocate for the adoption of Integrated Pest Management (IPM) as the preferred approach your school can use to solve its pest problems.*

*School nurses are in the critical position of advocating for the health of all students, and school staff. School nurses are all about prevention. Preventing health issues related to pests and pest management allows students to stay in school, in their seats, and ready to learn.*

*It is a worthwhile challenge to promote an IPM program at your school. If there is already an IPM program in the school, get involved by joining your school's safety committee, school health committee, or IPM committee. If an IPM committee does not exist, start one. Be sure to include students. School nurse contributions go a long way in reducing the risk posed by pests and pesticides.*

For more information on NASN, visit their website at [www.nasn.org](http://www.nasn.org)



*Pests, such as this German cockroach, can cause allergic reactions and trigger asthma attacks. By helping to implement IPM, school nurses can improve the student health by reducing risks from pests and pesticides.*  
Photo: eXtension.org



## Prepare Your Playgrounds for Spring Using IPM to Manage Pests



EPA recommends utilizing integrated pest management (IPM) techniques in and around playgrounds to manage pest problems. As IPM is an effective and environmentally sensitive approach to pest management, it protects human health by reducing exposure to pests and pesticides. The following IPM tips can help keep playgrounds a healthy space for outdoor fun!

### Mosquitoes



*Asian tiger mosquito*  
Photo: Bart Drees, Texas A&M Agrilife Extension

Keep mosquitoes from breeding in your playground equipment by monitoring play structures and toy interiors for standing water,

as they can double as prime mosquito breeding habitats if water is left to sit for more than 4 days. Tires easily collect rainwater and become a convenient breeding habitat for mosquitoes. A single tire that collects water can produce tens of thousands of potentially disease carrying mosquitoes over the course of a single season.

Source reduction is the primary step in managing mosquito populations, and no standing water means no mosquitoes! Keep all outdoor areas free of standing water including: playground equipment,

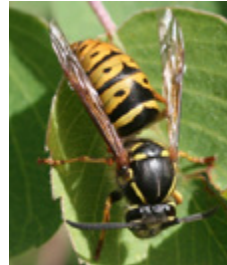


*Tires are excellent breeding habitat for mosquitoes, so make sure to drill holes in them to prevent standing water.*

toys, garbage cans, plastic trash cans, dumpsters, and gutters. Many styles of child play equipment, including tires, may need to have drainage holes added. In most cases, this can be accomplished by using an electric drill.

### Stinging Insects

Yellow jackets, bees, wasps and hornets are beneficial insects but are unwelcome on playgrounds due to their painful stings and potentially dangerous allergic reactions to those stings. Some are important predators of caterpillars, others are scavengers that help control pests, and all are pollinators essential to a healthy ecosystem. The objective of stinging insect management in schools is to reduce child encounters by eliminating prime foraging habitats through good sanitation practices and awareness.



*Yellow jacket*

If there is a chronic problem with bees or other stinging insects around playgrounds, outdoor lunch areas, or school athletic fields, inspect the area to locate the nests. Nests can be found in the ground, under eaves, and in wall voids of buildings. Ground nests are frequently located under shrubs, logs, piles of rocks, and other protected sites. Nest openings in the ground or in buildings can be recognized by observing the insects entering and leaving.



*Hornet nest in a tree*  
Photo: J. A. Payne USDA Ag. Research Service, Bugwood.org

The least environmentally destructive ways reduce stinging insect numbers is to modify the habitat on school grounds. Reduce the access to food, and to use physical controls such as trapping and nest removal. In spring and early summer yellow jackets and other stinging insects are attracted to protein foods. Any food left outdoors, open garbage containers or uncovered compost piles should be removed or

covered. Wasps imprint food sources, and will continue to search an area after the food has been removed. The cans should be emptied frequently and the lids and cans should be periodically cleaned of food wastes. Garbage cans on school grounds should have removable lids with vertical spring-loaded swinging doors.

### Ticks

Prevent tick-borne diseases around playgrounds through a variety of methods including landscape sanitation, plant selection to deter and resist deer browsing, and direct tick control methods. Remove leaf litter, brush, and weeds at the edge of the lawn in early spring. This will significantly reduce the abundance tick nymphs throughout their peak activity period.



*Landscaping for tick management*  
Graphic: Center for Disease Control

Keep grass mowed on all school grounds including sports fields. Create a nine foot buffer zone between vegetation and all grounds used for children's activities. Trim tree branches and shrubs around the lawn perimeter to let in more sunlight. Keep paths clear from vegetation to a width of at least one sidewalk (54 inches).

Area-wide pesticide treatments may be needed in areas of high tick incidence. Consult with your local authorities to determine appropriate tick control methods on playgrounds. Depending on location and tick species found, one application of an effective pesticide may reduce the number of ticks on a playing field. Check with local health officials about the best time to apply in your area and carefully follow label directions.

### Vertebrate Pests

Pests such as raccoons, ground hogs, chipmunks, snakes, and rats may overwinter in playgrounds, especially in sand, wooded or wood-chipped areas. Monitor the playground on a regular basis for occasional invaders.



Photo: Fish and Wildlife Service

If located near a wooded area check under equipment for nests. Sand playgrounds may harbor snakes and more. Remove branches overhanging playgrounds and school buildings. Overhanging trees can provide easy roof access for rats, squirrels and other pests.



Sandboxes can be a draw for snakes and other pests. Photo: Mom in Chapel Hill

### Tree Care for Pest Control

Tree care can control pests by reducing pest-conducive conditions. Trees should be kept trimmed and be regularly inspected for damage and weakness. Keep tree limbs from overhanging playgrounds. Age, storms and poor pruning practice create holes and cavities in tree trunks and large branches that often hold water, providing mosquito breeding grounds. The best way to manage these holes is to fill them with construction utility foam, which will resist tree movements and keep water from accumulating. This method is especially effective when the hole or cavity is first properly cleaned of all rot and debris, and then allowed to dry, prior to applying the foam.



Filled tree cavity Photo: University of Florida

### Turf Maintenance for Pest Control

Manage turf areas by monitoring, using spot-treatments for weeds and pests, and using non-chemical control options. Monitoring provides the information needed to formulate an effective IPM plan. Many potential pest problems can be detected before critical damage occurs by making observations throughout the year. By using a pest monitoring program preventive pesticide treatments may be eliminated. Cultural management is the key to maintaining healthy, pest-resistant turf grass. Cultural methods include the selection of turf grass cultivars, over seeding, topdressing with compost, modifying irrigation, mowing, and fertilizing practices.



Turf mowing height affects the presence and development of weeds. To maximize turf health and shade out weeds, mow grass to approximately three inches high. Reduce pesticide use by spot-treating for weeds, diseases, or insects, instead of broadcast application. Consider non-chemical control options including: hand-weeding, weed whackers, biological control options, and water management. While initial costs to transition a chemical-dependent turf to IPM can be higher, in the long-run costs will be lower as inputs, like fertilizer and water, decrease.

For more information on turf care, please see: [www.epa.gov/oppfead1/Publications/lawncare.pdf](http://www.epa.gov/oppfead1/Publications/lawncare.pdf)



## EPA Awards School IPM Grants

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The IPM common-sense approach is a stark contrast to conventional pest management in which an exterminator uses pesticides school-wide on a regular schedule, potentially exposing school children, teachers and staff to pesticides, with little emphasis on removing the underlying conditions that make it inviting to pests.

The three grants were awarded to:

**Texas A&M Agrilife Extension** to develop a central, internet-based hub for materials and phone apps that will give school districts the information and tools they need to adopt an IPM program. While the project aims to reach 1 percent of schools (552,350 students) within three years, it has the potential to reach all of the 15,000 school districts nation-wide and the 49 million children attending US public schools.

**University of Arizona** to develop and carry out a pilot training and certification program for school staff (custodians, kitchen staff, and school administrators) in eight states and at least four tribes, working with five other universities and stakeholders. Once finalized, the materials will be made available to schools nation-wide through partners.

**Michigan State University** to help 5 percent of Michigan and Indiana schools adopt IPM through hands-on education, training and coalition-building, including web-based trainings and a website. About 135,000 children may be protected.

For additional information on the three funded grants and IPM in schools, visit: [www.epa.gov/pestwise/ipminschoools/grants](http://www.epa.gov/pestwise/ipminschoools/grants)



## Spotlight on School IPM as EPA Assistant Administrator Visits Grantee Project in Arizona

On April 2nd Jim Jones, Assistant Administrator for EPA's Office of Chemical Safety and Pollution Prevention, travelled to Phoenix to support school IPM efforts. Joined by EPA Region 9 Division Director Jeff Scott and EPA Center of Expertise for School IPM Lead Thomas Cook, Jim was treated to a whirlwind introduction of school IPM efforts in Arizona by Dawn Gouge of the University of Arizona. One of three recipients of the 2014 school IPM grants, the University of Arizona's new project aims to develop a nationwide, standardized school IPM training and certification program.

The visit to Phoenix began with a hands-on tour of Metro Tech High, a magnet school that boasts an astounding 98% attendance rate and 87% graduation rate. In past years, the Metro Tech campus experienced challenging times - overgrown vegetation, poor sanitation, and pest vulnerable areas. The school administration and strong IPM coalition partners within the University of Arizona set out to improve conditions by developing a comprehensive IPM plan.

With the commitment and dedication Metro Tech has displayed, this exemplary school has been able to control its pests for more than a decade utilizing IPM practices. During the site visit, participants learned how Metro Tech implements an effective IPM program through kitchen sanitation, pest proofing, and clutter reduction. Metro Tech achieved sustainability of its IPM program through widespread education, involvement and participation of staff, students, and teachers.

Following up the tour, EPA presented a check for \$250,000 to Dr. Gouge and the University of Arizona IPM Leadership Team for their project entitled *Building sustainable school IPM inside and out: Developing and implementing standardized training materials and IPM proficiency exams.*

After the big check ceremony, Arizona IPM Education Commitment Awards were presented to several "heroes" in recognition of their dedication to IPM education and for their efforts to establish safe learning environments for children. See here, in their own words, how IPM transformed Metro Tech into a model school:



*From left to right: Thomas Cook, EPA; Paul Baker, University of Arizona; Jim Jones, EPA; Dave Kopeck, University of Arizona; Ursula Schuch, University of Arizona; Dawn Gouge, University of Arizona; Al Fournier, University of Arizona; Shaku Nair, University of Arizona; Kai Umeda, University of Arizona; Shujuan (Lucy) Li, University of Arizona; Jeff Scott, EPA*

• "IPM has provided Metro Tech with an important tool to assist in the education and promotion of creating a safe and healthy environment for our students and staff. It has become an important part of our mission of responsible environmental stewardship by providing a fundamental shift in how we operate our daily pest control activities." - Tony Scarfo, Phoenix Union High School District

• "The IPM process provides the elements of education, management and control in order to limit exposure to pesticides. In this way, on a daily basis, we are stewards for that healthy learning environment." - Ed Stallard, Mesa Public School District

• "My concerns with the adverse effects of pesticides on children led to working with school systems and other urban sites, with a focus on reducing risks from pests and pesticides." - Bill Currie, International Pest Management Institute

• "IPM serves as a framework to provide an effective, comprehensive, and low risk approach to protect our students, staff, and resources from pests." - Dan Vezie, Maricopa Unified School



*From left to right: Jim Jones, EPA; Dan Vezie, Maricopa Unified School; Africa Dorame-Analos (accepting on behalf of Elaine Wilson), Intertribal Council of Arizona; Doug Bruner, University Termite and Pest Control; Bill Currie, International Pest Management Institute; Ron Walker, Arizona Department of Agriculture Office of Pest Management; Dawn Echeverria (accepting on behalf of Pat Cops), Orkin; Tony Scarfo, Phoenix Union High School District; Fred Willey, Invader Pest Management; Ed Stallard, Mesa Public School District; Jeff Scott, EPA; Thomas Cook, EPA*

• "I believe IPM is the best approach in order to protect human health and the environment. I am a firm supporter of IPM and ensuring the safety and wellness of all people, especially children. We continue to educate tribal communities on the importance of IPM and using pesticides safely and ensuring the label is read prior to the use of the product." - Elaine Wilson, Intertribal Council of Arizona

• "SIPM minimizes undue risks." - Doug Bruner, University Termite and Pest Control

• "I like to educate the public that as Professional Pest Managers, you hire us to resolve your pest issues not apply pesticides, and it's our responsibility to control your pest issues safely and effectively and IPM strategies are a very effective course of action that utilizes chemical treatment as a last resort instead of first response." - Fred Willey, Invader Pest Management

• "I promote IPM practices since this is the best approach and includes an emphasis on proactive procedures, partnership with the customer, and the resolution of root cause issues. This in turn permits a limited need for extensive treatments when pesticides are needed. I have observed many positive impacts when appropriate IPM based programs are used, including the elimination of the pest issue and a reduced need for pesticides. In my opinion, homes, schools, food processing establishments and hospitals have all had positive impacts from the use of well-designed IPM programs." - Pat Cops, Orkin

• "Pesticide safety has been a priority of mine." - Ron Walker, Arizona Department of Agriculture Office of Pest Management

## Pigeon Roosting Survival Tips: Humane Ways to Minimize Pigeon Damage



Photo: Alexander Gamanf

Pigeons, pigeons, everywhere! Pigeon roosting time means it's time to get ready to see more of the birds referred to as "rats with wings". As common as yellow cabs and as ubiquitous as street vendors, pigeons are an integral part of city living. Pigeons actually perform a valuable service in removing food waste and/or eating harmful insects. Alas, no species is perfect. Pigeons can also cause problems such as excessive noise and large quantities of excrement being deposited on sidewalks, cars, and buildings.

Getting rid of all pigeons is unrealistic, but there are ways to minimize their presence on buildings. When they roost, pigeons leave behind feathers and nesting material, fleas and bird mites, and, of course, lots of droppings. Pigeon droppings can wear down stone, degrade marble statues and building materials, and corrode metal and car paint. The droppings are also high in nitrogen, and can enhance the growth of fungus or bacteria.

### Habitat Modification:

The best way to control pigeon populations is through smart, safe, and sustainable approach called Integrated Pest Management (IPM). IPM focuses on preventing pests which, for pigeons, means includes practices such as

excluding them from buildings, ledges and roosting areas and removing food and water sources.

**Limit Food Availability:** Prohibit bird feeding and practice proper

sanitation. Proper sanitation such as quickly removing spilled food and frequently emptying garbage cans will go a long way to making a location less attractive to pigeons.

**Limit Water Sources:** Repair outside water leaks, eliminate landscape watering that leads to puddling, fix clogged gutters, and exclude pigeons from heating, ventilation, and air conditioning units (HVACs) that provide them with water.

### Exclusion:

A variety of products are available to prevent birds from roosting on ledges. With exclusion, it is important to address all potential roosting areas, as on an only partially treated building the pigeons will simply move to the untreated areas.

**45° Angle Ramps:** Keep pigeons off ledges by covering them with a sloping piece of plastic or sheet metal. Pigeons can't land or roost on surfaces with a 45° or greater angle. It is important that the material used for the ramps is relatively smooth.

**Bird spikes and Pointed Wires:** Placed on building ledges and gutters with the spikes spaced closely together leaving birds nowhere to land, they are made of heavy plastic or metal, the sharp points keep birds from landing without seriously harming them, and they work on flat or curved surfaces.

**Bird netting:** Areas where birds are roosting can be permanently screened off with either metal or plastic bird netting with 1-inch mesh. A variety of types of netting available,



Limit food availability and prohibit feeding to discourage pigeons from calling your property home.

including varieties that can last as long as 10 years. Be sure to close all gaps to keep pigeons from squeezing through. Also screen all potential entry points with the wire mesh.

**Electrified Wires:** These wires can be used on rooftops and other areas where people will not encounter them. Electrified wires are a permanent exclusion device that requires some maintenance because accumulations of dirt, sticks, leaves, and other debris can cause shorts. They work by delivering a shock that repels pigeons but doesn't kill them.

**Trapping:** Trapping can be very effective when executed by a licensed professional.

**Nest Removal:** Inspect for nests, and remove them every two weeks.

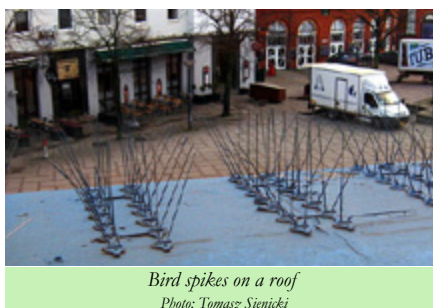
### Less effective or potentially harmful solutions:

**Scaring Devices:** Loud noises are more likely to annoy neighbors than pigeons. City birds are used to city noises, and they don't startle easily.

**Ultrasonic Noises:** ultrasonic sound waves bounce off objects, creating spots where pigeons can avoid the sound.

**Chemical Controls:** Avicides (bird poisons), repellents, frightening agents, and sterilants are not recommended because the use of preventative measures, including exclusion, habitat modification, sanitation and trapping are effective without presenting potential risk to other wildlife. If you choose to use pesticides, contact a licensed

professional and ensure that all label instructions are closely followed.



Bird spikes on a roof  
Photo: Tomasz Sienicki



## An Old Pest Challenges Cherry Growers

Pest management issues facing cherry producers continue to change rapidly, requiring responses from researchers, pest managers, and growers alike. The regulatory requirements for pesticides, along with considerations of non-target impacts, invasive species, resistance, maximum residue limits, and the re-emergence of formerly suppressed pests have forced significant changes in cherry pest management. This article will examine the challenges presented by a familiar cherry pest, Cherry Leaf Spot.

### Cherry Leaf Spot

#### *Biology and pest status*

Cherry leaf spot (CLS) is a fungal disease that infects cherry trees and is caused by the pathogen *Blumeriella jaapii* (Helotiales: Dermateaceae). Although both tart and sweet cherries are susceptible to CLS, the disease more frequently infects tart cherries.

In the spring CLS symptoms first appear as small purple lesions on the upper surfaces of leaves. These purple lesions eventually turn brown and grow for 6-8 weeks, during which time they may merge into larger patches.

At the end of the growing period the lesions separate from healthy tissue and drop out, leaving behind a leaf with a "shot-hole" appearance. Leaves with heavy infestations generally turn yellow prior to falling off early in the growing season. In heavily infested trees complete defoliation by midsummer is not uncommon.

Cherries on trees experiencing defoliation fail to mature normally, resulting in undersized and unevenly ripened fruit low in soluble solids. Flower bud formation and fruit set on defoliated trees is usually diminished for two growing seasons. Severely defoliated trees are highly susceptible to winter injury and can be killed by low temperatures.



*Cherry leaf spot*  
Photo: Michigan State University Extension

#### **Distribution and Detection**

Cherry leaf spot is distributed throughout regions of the U.S., Canada, and the world where humid conditions exist. The fungus that causes CLS overwinters on dead leaves on the orchard floor and in the spring develops spore-producing structures called apothecia. Near petal fall, spores are forcibly ejected from the apothecia and infect new leaf tissue that they come in contact with.

Spore germination on uninfected leaves may occur within a few hours if conditions are favorable. Lesions may develop within 5 days with leaf surfaces that are damp and the temperature remains between 60 and 85° F. If leaf surfaces are not damp and the surrounding temperatures are lower, lesions may take as long as 15 days to develop. Monitoring of CLS is most easily accomplished through the use of online disease forecasting models.

#### **Management Strategies**

Cherry leaf spot is primarily controlled through the application of fungicide sprays, which are much more effective earlier in the season. The first fungicide application should be made near petal fall to protect newly expanded leaves from CLS infection. Fungicide applications should continue every 7 to 10 days until harvest, followed by one or two post-harvest applications.

Several fungicides are available to control CLS including chlorothalonil, dodine, the succinate dehydrogenase

inhibitors: fluopyram and fluxapyroxad, the strobilurins: trifloxystrobin and tebuconazole, as well as copper-based fungicides.

Cherry leaf spot cultural control tactics include the collection and destruction of fallen cherry leaves in late autumn to reduce the amount of overwintering fungus, although this may be impractical for large commercial plantings. Practices promoting faster drying of leaves will decrease the risk of CLS infection including proper canopy pruning that improves air circulation and increases sunlight penetration.

#### **Future research efforts needed**

Future cherry leaf spot research efforts needed include the continued monitoring of CLS resistance to the traditional classes of fungicides, which has recently been documented. The development, evaluation, and registration of novel fungicide modes of action are also necessary for the control of CLS in the future.

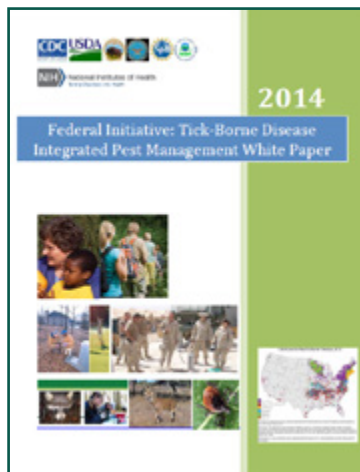
*EPA would like to thank Dr. Mark Whalon and Pete Nelson of Michigan State University for their contributions to this article.*



Photo: Michigan State University



## Release of *Federal Initiative: Tick-Borne Disease Integrated Pest Management White Paper*



On April 11, the U.S. Environmental Protection Agency and the Centers for Disease Control and Prevention announced the release of a document titled *Federal Initiative: Tick-Borne Disease Integrated Pest Management White Paper*. The document is the product of a 2-year collaboration by the federal Tick-Borne Disease Integrated Pest Management Workgroup, a group comprising 14 federal agencies including EPA, CDC, U.S. Department of Agriculture, U.S. Geological Survey, National Science Foundation, U.S. Department of Defense, National Institutes of Health, and National Park Service. It identifies six areas of interest including Integrated Pest Management, Agency Missions, Opportunities for Collaboration among Stakeholders, and Areas of Highest Strategic Priority.

This document is designed to maximize the effectiveness of the various efforts to reduce the number of tick-borne diseases in the United States and help increase coordination of federal, state, and local responses as well as to raise awareness of and interest in sources of funding and other resources. The workgroup recognizes that implementation of the recommended strategies depends on regulatory and budgetary circumstances and requires collaboration of many partners.

According to CDC, the number of cases of tick-borne disease is increasing. Scientists and public health officials believe the causes of these increases include ecological and environmental changes (such as shifts in land-use patterns); changes in wildlife communities (e.g., some species are more resistant to ticks or Lyme disease than others); human behavior changes leading to greater exposure risks; and better diagnostic, surveillance, and reporting practices for Lyme disease. Current research is helping to understand reasons for increased risk and to develop better protection.

The paper is available at the following link: [www.epa.gov/pestwise/ticks/tick-ipm-whitepaper.pdf](http://www.epa.gov/pestwise/ticks/tick-ipm-whitepaper.pdf).

Web resources on tick-borne integrated pest management can be found at [www.epa.gov/pestwise/ticks/](http://www.epa.gov/pestwise/ticks/) and [www.cdc.gov/ticks/](http://www.cdc.gov/ticks/)

## Tick Quest

Tick season is upon us and juvenile ticks are on the hunt for hosts (a behavior known as questing). Ticks feed on several mammals including mice and deer. Deer move hitchhiking ticks from one area to another. An increase in deer numbers in a given area may increase the chance of being exposed to pathogen-carrying ticks.

One thing you can do around your home to reduce the chance of encountering a tick is to avoid planting trees, shrubs, and other plants that deer find attractive. Here are several deer-attractive plants that you should not plant:



Crocus

Photo: University of Illinois Extension

**Annuals and Perennials Grown as Annuals:** Impatiens (*Impatiens*), sunflower (*Helianthus*), English daisy (*Bellis*), dahlia (*Dahlia*), and fibrous begonia (*Begonia*)

**Bulbs and Corms:** Tulip (*Tulipa*), daylily (*Hemerocallis*), lilies (*Lilium*), and spring-flowering crocus (*Crocus*)

**Herbaceous Perennials:** Hosta (*Hosta*), garden phlox (*P. paniculata*), hollyhock

(*Alcea*), daisy (*Chrysanthemum*), black-eyed susan (*Rudbeckia*), Jerusalem artichoke (*Helianthus*), candytuft (*Iberis*), shasta daisy (*Leucanthemum*), coneflower (*Echinacea*), cardinal flower (*Lobelia*), hibiscus (*Hibiscus*), and rose mallow (*Malva*)

**Shrubs and Trees:** Yew (*Taxus*), euonymus (*Euonymus*), arborvitae (*Thuja*), deciduous azalea (*Rhododendron*), rhododendron (*Rhododendron*) evergreen azalea (*Rhododendron*), rose (*Rosa*), hydrangea (*Hydrangea*), American holly (*Ilex*), evergreen holly (*Ilex*), yucca (*Yucca*), eastern red cedar (*Juniperus*), juniper (*Juniperus*), mountain laurel (*Kalmia*), and hemlock (*Tsuga*).



Sunflower

Photo: University of Missouri Extension

## EPA Grantee Receives Friends of Southern IPM Award

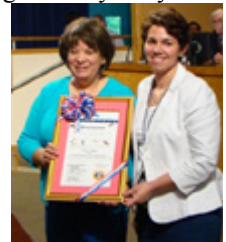
On April 10, 2014, the New Orleans Mosquito, Termite, and Rodent Control Board (NOMTRCB) was presented with the Friends of Southern IPM Implementer Award. The Friends of Southern IPM Awards recognize extraordinary achievement in research, extension and implementation of IPM in the southern region of the United States.

Claudia Riegel, NOMTRCB Director, appeared before the New Orleans City Council to be congratulated on the Board's receipt of prestigious award from the Southern IPM Center. The Council also presented Dr. Riegel with a proclamation recognizing her many accomplishments and ongoing dedication to the Board. Thomas Cook of EPA's Center of Expertise for School IPM was on-hand to offer congratulations on behalf of the Agency.

Receiving the Implementer Award recognizes Dr. Riegel and her team for the implementation of IPM in city buildings and schools across New Orleans. NOMTRCB has spent several years cleaning up buildings wrecked by Hurricane Katrina, as well as changing how people think about pest control. In 2008, Dr. Riegel began implementing a city-wide IPM program as buildings destroyed by Hurricane Katrina were repaired or rebuilt. By 2011, most city employees were practicing IPM in their buildings.

With the support of an EPA grant, Dr. Riegel has also worked to implement IPM in schools. One particular success for the implementation of IPM in New Orleans is John McDonogh High School. With the support of the entire NOMTRCB staff, school staff and volunteers, Dr. Riegel helped turn the school into a model for successful school IPM implementation. Other schools are now requesting the team's help, as NOMTRCB continues to spread IPM throughout New Orleans.

EPA and the PESPWire team congratulate Dr. Riegel and NOMTRCB on their award and for their exemplary commitment to IPM.



*New Orleans Councilmember  
Cynthia Hedge-Morrell (left)  
with Claudia Riegel  
Photo: NOLA City Council*

## Upcoming Events

Webinar: Closing the Gap: Addressing Asthma  
Disparities in Schools  
May 1, 2014, 2-3:30pm EST  
[https://www2.gotomeeting.com/  
register/465940042](https://www2.gotomeeting.com/register/465940042)

National Conference on Urban Entomology  
May 18-21, 2014  
San Antonio, TX  
<http://ncue.tamu.edu/>

An International Short Course in Agroecology,  
Integrated Pest Management (IPM) and  
Sustainable Agriculture  
June 15-25, 2014 (Application Deadline May 30)  
East Lansing, MI  
<http://worldtap.msu.edu/ipm/>

Association of Structural Pest Control  
Regulatory Officials (ASPCRO) National  
Meeting  
August 24-27, 2014  
Missoula, MT  
[www.aspcro.org](http://www.aspcro.org)

[www.epa.gov/pesp](http://www.epa.gov/pesp)

Weeds Across Borders Conference  
October 14-17, 2014  
Ottawa, Canada  
[http://wssa.net/wp-content/uploads/Weeds-  
Across-Borders-2014\\_Call-for-Abstracts.pdf](http://wssa.net/wp-content/uploads/Weeds-Across-Borders-2014_Call-for-Abstracts.pdf)

Pest World  
October 21-24, 2014  
Orlando, FL  
[www.npmapestworld.org/pestworld2014](http://www.npmapestworld.org/pestworld2014)

Entomological Society of America National  
Meeting  
November 16-19, 2014  
Portland, OR  
[www.entsoc.org](http://www.entsoc.org)

8th International IPM Symposium  
March 24-26, 2015  
Salt Lake City, UT  
[www.ipmcenters.org/ipmsymposium15](http://www.ipmcenters.org/ipmsymposium15)