Welcome to the Spring edition of the IPM in Health Care Facilities newsletter, published by the IPM in Health Care Facilities Project—a partnership of the Maryland Pesticide Network and Beyond Pesticides in collaboration with the Maryland chapter of Hospitals for a Healthy Environment (MD H2E). The Project enables and facilitates transition to safe pest management practices at Maryland health care facilities. This newsletter is part of the Project’s outreach effort to share information with Maryland health care facilities interested in effective pest management that protects patients, residents, staff and visitors from unnecessary exposure to pesticides.

Facilities participating in the Project’s Partnership Program agree that IPM prioritizes pest prevention and non-chemical interventions as key components to **greening** their facilities. Under an IPM approach, only least-toxic pesticides are used as a last resort for pest management. This approach is especially important for patient and long-term care populations, which are especially vulnerable to chemical-intensive pest control methods that can cause or exacerbate the very diseases and conditions for which they are being treated.

Feel free to contact us to learn more about how you can improve patient, staff and visitor safety by reducing pest complaints and toxic chemicals in your facility—with no increase in cost.

**In this issue:**

**Drain Flies and Fruit Flies:** Toxic-free steps to solve fly problems  p. 2-3

**Legislative Update:**

The Maryland Pesticide Information Act  p. 4

**Chemical Profile:** Insect Growth Regulators  p. 5

**Recent Events:**  p. 6

**UPDATE ON RECENT EVENTS:**

Maryland Hospitals for a Healthy Environment Trailblazer Education Event

The 31st Beyond Pesticides National Pesticide Forum

**Sustainable Families, Farms and Food:** Resilient communities through organic practices

Details for both events on page 6
Controlling Drain Flies and Fruit Flies

Drain flies and fruit flies are fairly common pests in facility locations that handle food or accumulate standing water. Without proper preventive measures in place, these pests can rapidly infest health care facilities. Understanding the biology and lifecycle of drain flies and fruit flies, particularly what they eat and where they can survive, is critical to stopping an infestation and avoiding this type of pest problem. The first step is to identify this pest. Drain flies and fruit flies are different: they live, breed, and eat differently so your pest problem will not be solved if you are treating the wrong pest.

Drain Flies:

Biology and Behavior—While drain flies pose little threat to people, given the right conditions they can lay 200 hundred eggs at a time so their population can grow excessively and be a nuisance, especially in dietary services. Drain flies are about 1/16—1/4 inch long, have a light gray body, and are covered in thick hairs. The larvae are small and when hatched, take only about 10-15 days to reach adulthood and can live about 20 days as an adult.

HABITAT: Drain flies require moist conditions or standing water to survive and breed. They usually appear due to the moisture in rarely used drains. Dirty drains that accumulate thick organic material can be a source of an infestation. Drain flies lay eggs in the organic material, which is why dirty drains are the most common breeding location where drain fly larvae are found. They can also be found near compost or decaying materials outside. Drain flies are not strong fliers and do not usually travel far distances. So their source is most commonly the nearest drain.

Fruit Flies:

Biology and Behavior—Similar to drain flies, fruit flies are about the same size and are also harmless yet irritating pests. With the right conditions, they can lay up to 500 eggs at a time and have only a seven or eight day life cycle. So a single rotting fruit or vegetable can breed thousands of fruit flies in only a few weeks. Fruit flies can be identified by their tan body and their usually red eyes. Unlike drain flies, they do not have any hair on their bodies.

HABITAT: Fruit flies are attracted to ripened or rotting fruit and vegetables. They lay their eggs on the surface of fruits or vegetables. The larvae will continue to feed near the surface of ripened or rotting produce until they grow into adults.

Identification:

The first step to solve a fly problem is to identify which pest you have. Once you know which pest to look for, locate and identify the source. While drain flies usually breed in drains, and fruit flies usually breed on fruit, both have the potential to breed in drains, garbage disposals, empty bottles and cans, trash containers, mops and cleaning rags. All that is needed for development is a moist layer of organic material.

- Equipment: Inspect behind and under equipment for rotting food or standing water.
- Floor tiles: inspect for organic material accumulation between floor tiles
- Standing water: Inspect for poor drainage or leaky pipes.
- Trash cans: Inspect trash and recycling for standing water or organic material on the bottom of the bin.
- Drains: Attach a plastic bag or tape to the drain and keep it there while the drain is not in use for a while. If flies appear in the bag or attached to the tape, you identified the source.
Drain Flies and Fruit Flies, continued:

Removal and Prevention:

Once drain flies or fruit flies are identified, all potential breeding areas and sources of attraction must be located and removed. Killing adult flies with pesticides will not solve the problem and will only expose staff to chemicals with harmful effects. These steps will help remove the source of the problem and prevent future drain fly or fruit fly infestations:

- Clean all surfaces including equipment, floors, counters, and walls. Anything that might contain food scraps, organic material or grease should be cleaned immediately.
- Remove and discard any left out food and garbage. Food that is left out might already be infested with fruit fly larvae.
- Remove and clean recycling and garbage bins. Take out the garbage and recycling immediately, clean the container and make sure the top is sealed.
- Replace mop heads and sponges. Old and dirty mop heads and sponges are prime breeding locations. These need to be cleaned and replaced on a regular basis. Mops need to be stored on racks, head up, to dry and mop buckets need to be dumped daily.
- Clean drains. Drains and drain traps need to be physically cleaned on a regular basis to remove organic material that can accumulate along the side of the drain under the drain cover. Liquid drain cleaner will not solve the problem. One area that needs careful attention is the lip of the drain which can more easily accumulate organic materials and can be overlooked during cleaning.
- Fix broken tiles and missing grout. Missing grout and tiles accumulate water and organic material and become prime breeding and feeding locations. Even with regular cleaning, unless the tiles are fixed and regrooted, they will continue to accumulate food particles and water.

If there are still flying adults, they will not be able to reproduce if their food sources and breeding locations are removed, and they will most likely die out within one to three weeks. To speed up the process of removing the adult flies, they can be caught using sticky fly traps or cider vinegar traps.

Recommended products for drain cleaning:

The number one way to ensure a clean drain is to manually clean it on a regular basis. In addition to manually cleaning the drain, there are a number biological products that use enzymes, microbes, bacteria cultures and/or citrus oil that break down organic material and do not pose a risk to people. Using pesticides and bleach in a drain will not be effective because while they will kill most of the insects, they will not remove the organic material which acts as a food source and breeding ground. One surviving fly can reinfect the facility. Non-toxic products include:

- Bio-clean
- Clean Blitz
- Vector Bio-5
- Bio Bullets
- Bio Mop
- DF 5000 Drain Gel
- Invade Bio Drain Gel
- Earth Enzymes
- BacOut
Legislative Update:

The 2013 Maryland General Assembly Passes Law for a Pesticide Reporting and Information Work Group

Pesticides pose a serious risk to our health and the Chesapeake Bay — but Maryland lacks the information we need about some pesticide use. Once public health and environmental experts have more information about when and where pesticides are used, they will be better able to assess if and how certain pesticides are linked to certain illness clusters or adverse impacts on water quality and aquatic life. In the Chesapeake Bay.

The 2013 Pesticide Reporting and Information Act (HB 775, SB 675) was amended to establish a stakeholder work group to study the need for a centralized database of commercial applicators’ pesticide use to provide data for research scientists and environmental and public health experts to determine if and when pesticides are affecting our health and our waterways.

The original bill requiring mandatory reporting of commercial applicators’ pesticide use to a centralized state database was amended to establish the work group to further assess the need for the database and legislation. The work group will provide a preliminary report of their findings and recommendations to the House Environmental Matters Committee and the Senate Education, Health and Environmental Affairs Committee by December 31, 2013. A final report is due by July, 2014.

How you can help: One hundred and forty health care providers and health care facility managers signed on to a letter to the Governor and legislators in support of the original bill. The sign-on campaign will now continue in an effort to pass a pesticide reporting and information bill in 2014. Go to smartonpesticides.org and click on Letter from Health Care Professionals in left hand column to add your voice to this important public health campaign. The bill has been supported by Health Care Without Harm, MedChi, MD Nurses Association, the Academy of Pediatrics–MD, the MD Public Health Association, and Chesapeake Physicians for Social Responsibility.

MARYLAND AGREES

Washington Post Editorial (March 25, 2013):
“Spray it Say it: Maryland farmers should report their use of hazardous pesticides”

The Baltimore Sun:
“Being better informed about [pesticide] use would seem a modest step in protecting the safety and welfare of current and future generations of Maryland families.”

The Washington Post:
“Biologists say studies are falling short because of a lack of data on the type and quantity of pesticides that run into the bay...”
**Chemical Profile: Insect Growth Regulators**

**What are Insect Growth Regulators (IGRs)?**

Insect Growth Regulators (IGRs), also called third-generation insecticides, are pesticides that disrupt the normal activity of the endocrine or hormone system of insects, affecting the development, reproduction, or metamorphosis of the target insect. They have a much slower mode of action than synthetic chemical insecticides.

**Mode of Action:** There are two groups of IGRs:

1. **Chitin Synthesis Inhibitors (CSIs).** CSIs include the pesticides hexaflumuron, lufenuron and diflubenzuron. They work by inhibiting the production of chitin, a major component of the insect exoskeleton. Insects treated with CSIs become unable to synthesize new cuticle, and therefore unable to successfully molt into the next stage.

2. **Juvenile Hormone (JH) mimics.** Most currently registered IGRs, such as hydroprene and methoprene, fall into the JH mimic category. These pesticides mimic the JH produced in the insect brain, which forces the insect to remain in a juvenile state. When exposed to a JH mimic, the insect remains in an immature state, and is rendered unable to successfully molt into the adult stage or become reproductively viable.

**Toxicity**

Different IGRs can cause problems that range from irritations of the eye or skin, to kidney and liver damage. While IGRs are not neurotoxins or carcinogens, they are irritants and when they are administered through a sprayer, their increased volatility can put more people at risk.

There is a concern about the effect of IGRs on non-target species and many IGRs are lacking full health and safety data. CSIs may be toxic to other arthropods and JH mimics are not specific to the pest under attack, as the molecules based on the JH system are more or less common to all insect species.

**Alternatives:**

Since IGRs do not kill insects, and instead prevent them from reproducing, practicing IPM will accomplish the same goal by denying the ants, roaches, or flies the access to food, water, and shelter that they need to survive.

With IPM, the focus is on preventive strategies that do not expose people to the toxic effects of pesticides:

- Remove any food sources.
- Cleaning all surfaces and remove garbage.
- Seal all entry points using caulk and door sweeps.
- Remove any water sources or humid conditions including standing water, condensation or leaky pipes.
- Clean drains.
- Trim vegetation further from building exterior.
- Use non-chemical products such as insect monitors, glue boards, and vacuums.

If pesticide products are applied to speed up the elimination of these pests, least-toxic products, such as boric acid, can be applied. These products do not volatilize and are thus considered least-toxic products.

**HYDROPRENE:**

One of the most common IGRs for interior use is hydroprene, which is the active ingredient in Gentrol products. Hydroprene is the most volatile of the IGR's and is used to treat ants, roaches, drain flies and fruit flies. It is heavier than air and will move deeper and sideways within cracks and crevices when applied as a spray. Hydroprene is an eye irritant; sensitive individuals may develop an allergic reaction after repeated use. It is also a mild skin irritant and sensitizer.

More science is needed to determine additional human or environmental risks associated with hydroprene.

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### RECENT EVENTS:

**On April 4, Maryland Hospitals for a Healthy Environment hosted a Trailblazer Education Event at the Greater Baltimore Medical Center**

The event featured the groundbreaking, award-winning sustainability initiatives that five Maryland hospitals implemented in 2012. Featured award recipients presented on their work in energy management, healthy food, reusing furniture, creating a garden, and protecting newborns from pesticides.

Matt Wallach, Project Director for the IPM in Health Care Facilities Project presented on the progress the ground breaking and award winning program to educate new parents about safe alternatives to pesticides.

In 2011, The IPM in Health Care Facilities Project partnered with UMMC to implement a “New Moms” pilot, which educates new mothers about the hazards pesticides pose to their newborn while promoting the use of safer practices and products for their home. New Parents receive a kit that includes educational materials, free samples of safe products, and a survey to track the effectiveness of the kit. Survey results show that parents are learning about the dangers of pesticides and are making the switch to healthier products and practices.

For more information on the Trailblazer Awards and each winner, go to: [http://mdh2e.org/awards-recognition/2012-trailblazer-awards/](http://mdh2e.org/awards-recognition/2012-trailblazer-awards/)

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**On April 5-6, Beyond Pesticides hosted the 31st Beyond Pesticides National Pesticide Forum**

**Sustainable Families, Farms and Food: Resilient communities through organic practices**

The 2013 forum was held at the University of New Mexico in Albuquerque, NM

The Forum brought together top national scientists with local and national activists and concerned citizens to share information on the issues local communities are facing, craft solutions and catalyze networks to manifest positive health and environmental policy and change. The conference focused on building resilience in our food system and bringing ecosystems back to balance, incorporating regional issues such as water and food sovereignty in the Southwest. The National Forum provided an opportunity for grassroots advocates, scientists, and policy makers to interact and strategize on solutions that are protective of health and the environment.

The forum was convened by Beyond Pesticides, La Montanita Coop, and the University of New Mexico Sustainability Studies Program, and co-sponsored by local, state and regional public health and environmental organizations, including the New Mexico Department of Agriculture’s Organic Program, Amigos Bravos, Our Endangered Aquifer Working Group, Farm to Table, Holistic Management International.

For more information please go to: [http://www.beyondpesticides.org/forum/index.php](http://www.beyondpesticides.org/forum/index.php)

Videos of the conference speakers will be available on the Beyond Pesticide website

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