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Online Training Available

<https://pmu.ifas.ufl.edu/>

Additional Resources

University of Florida
Extension Publications

<http://edis.ifas.ufl.edu/>

Pest Management in and
Around Structures

<http://www.eXtension.org/>

PMU Focus - Bed Bug Insecticide Resistance

By: Faith Oi

I was asked to present a talk on "A Step-by-Step Technician's Guide to Insecticide Resistance" for NPMA's Bed Bug Summit. While preparing for the talk, I started pulling together points on how a technician might recognize that she/he was dealing with a bed bug resistant population, which led me to the question on why bed bug treatments fail (and how failures can be avoided!).

Short of doing resistance testing on the bed bugs, the logical way to deduce that insecticide resistance is a factor is to eliminate the other causes for treatment failures. Here's the list of situations that can contribute to failures. These are not meant as a get-out-of-jail-free card for not controlling bed bugs, but some reasons that can be addressed:

- The homeowners have unsuccessfully "self-treated" so you are called in after the infestation has spread to different parts of the home at harder to detect levels.
- Clutter = harborage.
- Picking the wrong product. Published data indicate that ultrasonic pest repellent devices, over-the-counter total-release foggers and even hydroprene at the label rate (Goodman et al. 2012) are not effective. Additionally, most "natural products" are ineffective (Singh et al 2014).
- Formulation selection. Product lines such as Temprid™ and Phantom® come in different formulations with



Figure 1. Clutter makes inspection, detection, and treatment of bed bugs difficult.

different levels of efficacy and speed of kill which is also bed bug stage dependent.

So how can you narrow down if you are dealing with insecticide resistance? Some clues:

- Your BEST technician gets a call-back more than once.
- The same product has been used for the last few years.
- The homeowner self-treated with a product from the same class of insecticide as you are using.

Other factors that favor insecticide resistance (Thank you, MES)

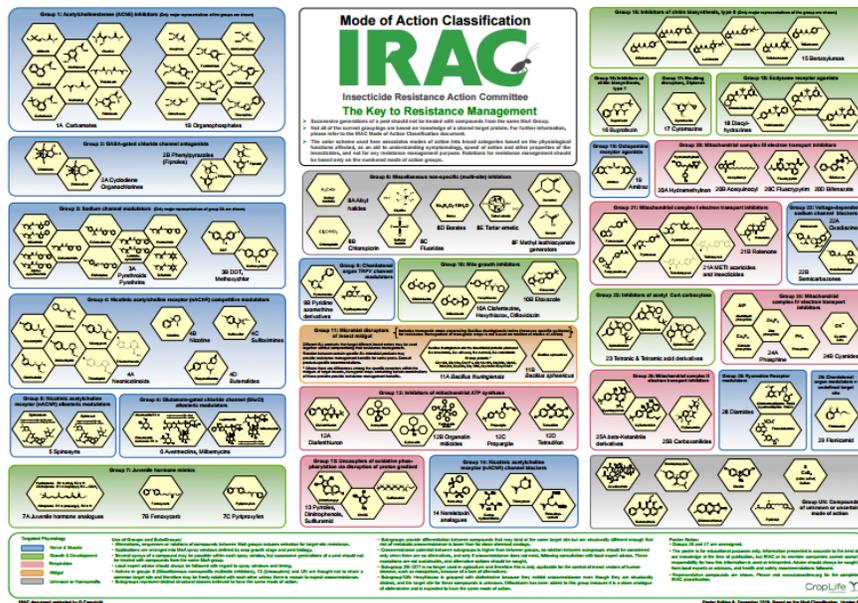
- Use of slow-release formulations
- A high percentage of the population is treated
- Immature and adult stages are treated with the same material
- Insect species (i.e., bed bugs) with fast development times, high fecundity, and limited dispersal

What can you do?

- Use IPM!
- Use the [IRAC classification system](#) to develop a product rotation program for your company. Download the app. It's FREE!
- Vacuums are your friend. Just like in situation with large populations of cockroaches, physically removing large numbers of bed bugs is effective!



Figure 2. Use a HEPA vacuum.



We (Still) Need Your Ticks!

- We are continuing our work on the BDT resistance profiling
- Current work is focused on the sodium channel mutation that confers pyrethroid resistance



Figure 3. Engorged female brown dog tick, about the size of a raisin.

WE NEED TICKS!!!

- Email pkaufer@ufl.edu for details and permits (if not in FL).
- 5 blood-fed females
- Shipped live to Kaufman

Upcoming Training Opportunities:

...Did you know that PMU can help you by

- Partially satisfying the 482/5E-14 requirement for initial technician training hours?

Plan to take the state exam with PMU while the information is still fresh in your mind! The state has graciously allowed us to hold the state certified operator examination at the end of each Masters course so plan to attend! We hold optional reviews in the evenings. To qualify, you must:

- Take the Foundations **and** Masters courses for GHP, WDO, or L&O

- Fill out an application package for the certified operator exam either
 - [Online](#); deadline one week before exam

January 2017 Offerings (Where did the time go?! We have a few registrations now, so register early!):

Foundations of Termite Management 101

Date: Jan 11-13, 2017; W-F

Place: UF/IFAS Apopka MREC

Time: 8 AM-5 PM (W, TH); 8 AM-12 PM (F)

Registration fee: \$375

Learn how termites exploit over 50 building construction elements and how to treat them in a hands-on environment in 2-days instead of 2 years.

- Practice doing a DACS vehicle inspection and spill drill with Paul Mitola from DACS before a crisis occurs.
- Hear about the top 10 reasons technicians get in trouble and how to avoid them from Mark Ruff, industry attorney.
- Get more in-depth information on termite biology and behavior as well as product label navigation.

[Register here](#)

Foundations of Lawn and Ornamentals Pest Management 101

Date: Jan 25-27, 2017; W-F

Place: UF/IFAS Apopka MREC

Time: 8 AM-5 PM (W, TH); 8 AM-12 PM (F)

Registration fee: \$375

- Learn about the general Florida licensing requirements for technicians and sales staff.
- Be able to pass DACS vehicle inspections, practice doing a spill drill, and learn the best ways to minimize risks before, during, and after an application.
- Learn to identify diseases, insects, and weeds in lawns and ornamentals via classroom and a walking tour as well as best management practices for their control.
- Gain hands on experience reading and understanding pesticide labels, calculating treatment areas, and

calibrating application equipment for lawns, shrubs, and other ornamental plants.

[Register here](#)

Foundations of General Pest Management 101

Date: Jan 25-27, 2017; Wed-Fri

Time: 8 AM-5 PM (W, TH); 8 AM-12 PM (F)

Place: UF/IFAS Apopka MREC, 2725 S. Binion Rd, Apopka, FL 32703-8504

Registration fee: \$375

- Study domestic and peridomestic cockroach species and how to control them as well as rodent, small fly, filth fly, mosquitoes, occasional invaders, fire ant, and nuisance ant management.
- Review the labels of commonly used GHP products, practice pest inspections at PMU's house and develop treatment strategies focused on IPM.
- Do a vehicle inspection and spill drill with Paul Mitola from DACS.

[Register here](#)

Click on "Register here" for course descriptions or go to <http://pmu.ifas.ufl.edu/courses> for more information

Learn more from IFAS



- UF/IFAS has Extension Offices in each of Florida's sixty-seven counties. We also have twelve Research and Education Centers (RECs) and Research and Demonstration Sites (RDSs).
- If you need help a great place to start is your local County Extension Office. With an office located in every county it has never been easier to partner with the University of Florida and your local County Government. To find an office near you please visit:
<http://solutionsforyourlife.ufl.edu/map/>

