Bed Bug Update

First and foremost, thank you to PCOC for the opportunity they gave me to speak at your Annual PCOC Conference on Coronado Island in San Diego. As many of you know, I love to share my bed bug stories and you've got to love the little critters for their tenacity and interesting biology.

We've long considered the bed bug an insect not on our radar needing control, however, given their increase in numbers, PMP's servicing the hotels, hostels, and schools have long known that these little critters have never left us completely. There is a lot of anxiety, and to some degree hysteria, by the public regarding bed bugs. I've long considered myself immune to the "bed bug anxiety"; however, I was truly amazed when I found myself a victim in a hotel room. I was further dismayed to learn none of the hotel cleaning staff could identify the insect when I showed it to them. And yes, this room had a long history of bed bugs per the hotel manager. My first clue should have been the mattress and box spring encased in plastic. Lesson learned: Until you experience it, knowing the biology, chemistry, and behavior of an insect does not always prepare you for the emotion experienced with a personal intimate infestation.

Luckily to date, studies have shown that pathogens cannot survive for long in a bed bug host. However, if they could we would have a significant health crisis.

We've got to give bed bugs credit. They have learned to adapt well to human hosts. Given their early beginnings in caves feeding on bats and birds, they knew a good thing when they saw one. Humans are fairly stationary relative to other animal species and we tend to fill our homes with precious items, food, clothing and other clutter. Then we keep this environment nice and warm. We recycle furniture, clothes, books, etc, providing bed bugs with easy travel. Migration of the bug is even easier since we have made our world a global economy with goods and travel. Yes, we are the perfect host.

The arsenal of control methods is constantly changing and new developments are on the horizon. Today, some of these methods include fumigation, heat, and chemical application. Fumigation is still the workhorse in the industry. When insects are as cryptic as bed bugs, fumigation continues to successfully eradicate the pest. Extensive research by Dow AgroSciences has proved the efficacy of fumigation using 3x the rate of a drywood termite job.

Heat technology is proving to be another successful control method. The laboratory of Vernard Lewis at the University of California, Berkeley has just completed a trial demonstrating the effect of heat on bed bugs and their eggs. Stay tuned, the results of the trial will hopefully be accepted for publication in PCT Magazine in the near future. The bottom line: all the bed bugs and their eggs were killed. One interesting little observation was made during the trial, which probably is nothing more than interesting, but you all know how much I love these little discoveries and factoids. Live bed bugs were placed in an open petri dish and taken into the heated structure at temperatures around 110 degrees. They were immediately agitated and many paired off and clasped onto each other and

appeared to frantically mate. What's up with that? I have no idea if they were actually mating, but it was quite exciting to watch and hypothesize as to why the behavior existed. I've got to admit, I love this job. Where else do you get to see this stuff?

Chemical application is another common means to treating bed bugs in a structure. With a growing number of chemical substances (carbamates, organophosphates, etc.) no longer available and an increasing threat of pyrethroid resistance, eradicating bed bugs in a structure is a difficult task. Dr. Mike Potter, University of Kentucky in Lexington along with doctoral student, Alvaro Romero, and Kenneth Haynes and Daniel Potter, have done some extensive work and reporting of this phenomenon (see PCT Magazine October 2006). Four infestations collected from separate locations in Kentucky and Ohio were found several thousand-fold resistant to deltamethrin and lambda-cyhalothrin as compared to a laboratory strain of bed bugs not susceptible. The implications of this discovery is the possibility that products with pyrethroids as an active ingredient may be compromised. However, the products on the market today are holding up well and can be used with confidence by the PMP. Just keep your ears and eyes open in the years to come as things can change. Remember, resistance to insecticides is NOT a new phenomenon as we've seen with DDT in the late 1940's. Once resistance to DDT had taken hold, many new products were developed and available to the PMP. Also, a word of caution in regards to failed bed bug jobs. There are many, many reasons why you WILL experience this but insecticide resistance is most likely near the bottom of the list of explanations. In my experience, the most likely reasons tend to be customer cooperation in clutter cleanup, transferring infested personal items prior to treatment, and leaving infested laundry in laundry rooms. The bottom line: don't let resistance be a crutch to explain failure of a job.

Well, they only gave me 1000 words for this article and you all know I can go on and on. So, in conclusion, I'll say when it comes to bed bugs: happy hunting. (916 words!)