

Transcript the Q&A portion of the bed bug webinar: Taking control of bed bug treatment

Q: Do you need to be licensed to apply [pesticide] in rental units in Maine?

Allison Taisey (AT): Yes. I don't know what the threshold is for number of units though. The different states vary. Go to the National Pesticide Information Center website (<http://npic.orst.edu/>) and click on your state to find your pesticide regulatory agency or call up NPIC.

Q: When will the data be available for the preventative treatment study?

Molly Steadfast (MS): We are looking at doing a year of monitoring in this apartment complex that we're working in and we started in January. So a year from now we should have some concrete data on the costs saved and whether or not the diatomaceous earth applications and the protocol were effective in helping to control the bed bug infestations at the apartment complex. So hopefully, by January.

AT: Great. And for those of you who aren't familiar with it, I do have a blog that's linked to off of [stoppests.org](#) and when Molly has research results, I'll post it on the blog.

Q: Why should the encasements be a snug fit?

AT: Every little fold is a crevice that a bed bug could tuck into. You want them to be a snug fit so they are easy to inspect.

Q: Other than interceptors, night watch, and visual inspection, are there any other monitoring methods?

AT: Those are the main ones. As far as monitoring goes—visual inspection is actually an inspection, not a monitoring method. There are a lot of products out there being advertised as monitoring devices. Some use corrugated cardboard, a lot of different attractants. It's really the hot spot on the market right now—developing different bed bug monitors. My recommendation is any that you are considering, ask to see their peer-reviewed data if they have any or objective data that they did not pay to have developed. And you are welcome to email me at stoppests@cornell.edu and ask if I have seen any data as well. Molly, do you have any additions to that?

MS: Not really right now. I know Allie and I just returned from a conference in Atlanta where a lot of people were talking about monitors. So I think in the future there will be some, but there aren't any more available right at this time.

Q: Where can we get more information on the DIY heat chamber?

AT: Fortunately, the link that Molly provided is a video instruction so it's very clear on how to make this box. Molly, do you have anything to add as far as your experience having housing authorities do this?

MS: Several of the housing authorities have expressed interest, instead of doing it in one room, doing it on a trailer so that it can be moved from unit to unit and complex to complex. And they are really enjoying doing that and it's making it a lot easier. A lot of them are also incorporating the use of heat box. No questions asked at move-in, no matter what, to try to stop the influx of bed bugs.

Q: Is cedaricide effective? A local housing provider here uses this exclusively in multifamily buildings.

AT: Cedaricide is, I believe, a 25b product at this point. I've heard good results on it. I'm trying to think of, and Molly may know of, a peer-reviewed study on cedaricide. From what I'm remembering, they were looking at separating the different ingredients in cedaricide to figure out what exactly was having the effect. In some cases, it was the inert ingredients and not the cedar oil itself. With any product, you are looking for—if you can get the bugs, if you can access the bug with the product, most of the time, yes, it is going to kill them. That stands true even for water. So it's really worth trying to figure out what makes different products effective and what parts of the bed bug system, whether it is their enzymes that break down the pesticide or the thickness of the cuticle—exactly why they are resistant to certain products. But cedaricide, I am hearing a lot of people are using it. I was actually in a facility yesterday where they were using it. You just always want to take precautions, follow the label directions, and note that there is no such thing as a non-toxic pesticide because these chemicals are designed to kill pests.

Q: Will washing the clothes cause the bed bugs to drown? Unless the water is more than 120 degrees F, how would this be effective?

AT: Yes, bed bugs will drown. The tricky part to bed bug control is their eggs and as extension folks, we want to make recommendations that are pretty fail-proof. And so we say hot water because a lot of folks have their water heaters programmed at 120 degrees, which is right up there near that thermal death point. So hot water gives you a better chance than using cold water of killing the bugs. Drowning may get most of them, that is true. It's the high heat in the dryer that we are relying on to get to the eggs and really finish them off. One thing to note is that you can check the lint trap of the dryer to see if any bed bugs were caught and that's another nice way of verifying that it worked or not. Molly, can you add on that?

MS: The only reason we would even recommend washing the clothes in hot water is if they were dirty. Really, the killer is the dryer heat, especially if people are using laundromats or things like that.

AT: And that's a huge cost-savings, too. Exactly. Laundromats get really expensive so it is the hot dryer that is the killing method.

Q: Any recommendations for treating units where a tenant has hoarding issues?

AT: <http://stoppests.typepad.com/files/ipm-in-a-hoarded-home.pdf> is a document on how to do IPM in a hoarding home. I've done some work with a Boston University researcher whose

expertise is in hoarding. Hoarding is a serious mental health issue and you have to do pest control in a way that is sensitive to the special needs of that resident. I say, if we can do this in a hoarded home, we can do it anywhere, so it's worth reading the recommendations and applying them to other sites as well. Molly, anything to add on to hoarding?

MS: No. But it does make treatment a whole lot more difficult. It's something you want to deal with separately.

Q: Do the heat generators operating at 140 degrees F kill bed bugs?

AT: My experience with heat treatment: you want to have a heat source that is compliant with local code. That's been the limiting factor in many different places where I've worked. And some generators that require the source to be outside and pumped in - that's not always going to work, for a high-rise building when you're trying to work up on the twentieth floor, for example. Once you start to apply the heat within the home, it's all about air movement, getting that heat to move around the home and at certain points within the treatment—be moving the cushions and the furniture, to expose new cold spots to that killing heat, and also having temperature monitors placed throughout in areas where you think there may be a cold spot.

So, do heat generators operating at 140 degrees kill bedbugs? I can't say specifically. I'd have to know the make and model and talk to folks who are doing a lot of heat treatments. The companies that are selling heat set-ups, heat systems, specifically for bedbugs? It's really all about those monitors and making sure that your data loggers show that you are reaching 122 degrees F at every point within the home. Molly, anything to add?

MS: No. Just as long as everything gets up to above 122F. That's the most difficult part, so if you have something going up to 140, that should be effective.

AT: Definitely, if you are taking whole-unit heat treatments in-house, talk to a company that's doing it and has some good experience and talk to the reps. They should be able to give you a lot of warnings. We've learned a lot of lessons on how to do heat treatments. For example, old tiles may lift up. You've got to flush the toilets so the wax seal doesn't melt. All these little nuances that you want to learn about before you start doing this on your own.

Q: Diatomaceous earth: is it considered a pesticide? How, if it is non-toxic?

AT: Diatomaceous earth is a pesticide so it's not non-toxic, but we do call it least-toxic. The active ingredient in diatomaceous earth is a least-toxic product. And do you need to be licensed to apply [diatomaceous earth] in rental units in Maine? I did answer that one, and the answer is yes, I do believe you do.

Q: Have you used small carbon dioxide canisters to identify an infestation?

AT: In that case, Rutgers published an instruction on how to build your own monitor using a cooler that you put dry ice in and that dry ice would release CO₂ and attract the bed bugs in. It was shown to be effective when done by a researcher but we do not make that recommendation

in our program, just because, when using dry ice, there are a lot of things that can go wrong. I don't want to promote something that has that much risk associated with it.

As far as small carbon dioxide canisters that you might by, for example, for camping or something, those canisters are what releases the CO₂ in the active monitors that we mentioned. You would go to one of those sporting goods stores to have them refilled. So, yes, I've used active monitors that used small carbon dioxide canisters, if that's what you are talking about.

Q: For low-income folks, can't they just use a plastic container with talcum powder in it under the bed legs?

AT: Actually, those climb-up insect interceptors are pretty darn cheap. It won't be much cheaper to buy plastic containers and talcum powder. You can certainly try it. I encourage innovation that doesn't involve using a pesticide. You've got the right thought there, as far as, you want a plastic surface that bed bugs can't crawl up to escape. One of the issues with using a plastic container is that bugs that crawling across the floor, trying to get up onto the bed, wouldn't be able to get into that container. One benefit of the interceptors is that the bugs can get caught in the outer well when they try and get to the bed or be caught in the inner well when they're trying to get from the bed. Anything else to add, Molly?

MS: Nope. Well, actually, there are a lot more of those plastic traps than just the climb-up interceptor, of all different prices and sizes and colors and things like that available online. The Bed Moat is one and the Unbuggable trap is another, just for a couple of examples.

AT: Lots of examples out there. With anything, I would encourage you to have the manufacturer send a sample and run your own test where you know you have an active infestation. Make sure it works before you order anything in bulk.

Q: Can you send info about the machines shown in the early slides to attract and trap bed bugs?

AT: Look up "Nightwatch Monitors"

Q: Could we not just use any container box? For example, on a truck: it could be used in different places as a heat box.

AT: I'll let Molly respond to that.

MS: Some people, some apartment complexes, have worked to do that. One apartment complex we worked with actually built a small shed strictly for the purpose of using it as a heat chamber. Also, people have used containers and built heat boxes on the backs of trailers. I don't know if you're talking about a regular old truck bed. I don't really think that would effective because it probably wouldn't be quite big enough to get all the furniture you want in there. But other places can definitely be used as a heat chamber, and it would really just be what you or a facility that you're working with would be comfortable with building and how much you would be comfortable spending on constructing the heat chamber.

AT: And if you are looking into that and you're going to invest a significant amount of money into building something like this, get in touch with us and we will get you in touch with someone in your area who has experience with heat or maybe Molly's program. They can coach you through how you might insulate a box well enough to have it on the bed of a truck. I've also heard of housing agencies that take one unit offline and dedicate that to a bed bug sauna. There's a lot of different ways to kill this bug.

Q: Does rubbing alcohol help in the prevention of bed bugs? Our third party management company is always spraying their office chairs with alcohol.

AT: This is a really good question. Thank you so much for asking it. Rubbing alcohol, like water, will kill bed bugs, but it doesn't have any residual action. It's not a preventative. If the rubbing alcohol, when it's wet, contacts the bug, it will kill it. But once it dries, [rubbing alcohol] does not kill it. We do not ever recommend using rubbing alcohol against bed bugs because rubbing alcohol is not labeled as a pesticide and thus, it should not be used as one.

One warning: if that advice [to use rubbing alcohol] gets out in your community - I've heard of at least three cases now where residents get that recommendation and run with it. They hose down their beds with rubbing alcohol and then they sit at night and smoke. We've had a few cases where people's apartments go up in flames because they've got so much rubbing alcohol sprayed around their homes. So it's a health threat and we don't recommend rubbing alcohol. If you're wanting something to hose down to kill bugs on contact, just use one of the heat method that we've talked about today. Don't get *too* creative.

MS: Or if you feel like spraying something, it's going to be more effective to spray water. Water would do the same thing as rubbing alcohol would to drown the bed bug.

Q: What can we do about office chairs?

AT: I understand a lot of office staff are very concerned about residents bringing in bed bugs to the office. One recommendation I'd make is to have the chairs that the residents sit in fairly simple and easy to inspect and do visual inspection with a flashlight of those chairs quite frequently. And also, you can have a plastic Tupperware or large tub where residents can set their belongings during the meeting and that way, they're not setting their purse on your desk or on the floor next to your desk. If there's a bug on that purse, it's contained within that Tupperware. When the resident leaves, you can just take a quick look in the container. Again, you can see this bug, so you can see them crawling around in the bottom of the Tupperwear and you can just flush them down the toilet.

Q: You mentioned dry moisture. How do you figure out if you are using or not using too much water? Does it vary by steam machine?

AT: This is something that I believe the manufacturers advertise. Molly knows more about this than I do.

MS: Yeah, it does vary by steam machine and if you were to, say, go to Walmart and buy what they call a professional-grade garment steamer, chances are that it's not going to be top of the line. I don't know if any of you have ever used steamers before, but sometimes if you hold the nozzle at certain angles, it may leak and drip out water. That's what you're trying to avoid for the most part there. I don't think they're actually called insecticide grade, but steamers that are used by professional pest control companies are labeled to have a more dry steam which just doesn't have any of those moisture or leaking issues that some of the consumer-available machines would.

AT: And you can search steamer and bed bug. Even if you are taking components of your bed bug control program or your entire bed bug program with licensed staff in-house, we encourage you to partner with a local pest control company and use their expertise and what they've learned. Ask them what different devices they've found to work and they may be willing to partner with you and provide training for you. Perhaps that's what you pay them for, is your staff training and coaching more than pesticide application itself.

Q: Is food-grade diatomaceous earth effective?

AT: You want to have diatomaceous earth that's labeled as an insecticide. There's diatomaceous earth also out there that's also for pool chemicals and you want the insecticide diatomaceous earth. It has to do with a difference in the size of the diatoms. Molly, any additions to that?

MS: Food-grade and insecticide-grade are actually the same type. Some people take diatomaceous earth as a food supplement and it's the same type that is used as an insecticide. The differences between the food/insecticide grade and the filtration grade, which is used in swimming pool filters - that filtration grade has been heat-treated in its processing, which caused the diatoms to change shape and makes them an inhalation hazard. So if you go Lowes or something like that, chances are that when you ask, the people who work there are going to direct you towards this filtration-grade [diatomaceous earth], which is hazardous to humans and all mammals. You want to make sure you are using either the food grade or the insecticide grade. A lot of the major chemical distributors are coming out with their own brands of diatomaceous earth. I know BASF, Mother Earth, and other companies are using diatomaceous earth and adding in pyrethroid components, which is another take-it-or-leave-it sort of thing for me. But you want to make sure that it's that food or insecticide grade diatomaceous earth, not the filtration grade.

AT: I'm advocating the insecticidal grade, just because when you buy the insecticidal diatomaceous earth, it will have a label giving you use instructions for it used as an insecticide. It's really important that you read the label when you purchase, use, store, and throw away any pesticide product. And the insecticide grade diatomaceous earth will have those instructions on that label.

Q: I have people who want to rent machines and do it themselves instead of paying \$2,000.

AT: I'm assuming it's steam machines. I've heard of that, as rental or a housing provider having an in-house vacuum or steam unit that is available to residents for their own use. Those are

certainly options, but with any of this—it's all about education on how to use these different products and devices. This webinar did not qualify you to apply pesticides. It's not an official training for how to do a heat treatment. We gave you a lot of hints and hopefully gave you some impetus to go and seek some on-site training from a local pest-control professional who has experience with bed bugs. If you are offering steaming units or vacuums to residents or to anyone for use, make sure that they understand how to effectively use it and also understand any risks involved. For example, steam can conduct electricity and it is really hot, so you want to make sure that your education that goes along with just handing out these different control methods is well-vetted and comes from a source that has good experience with using the devices themselves.

If you do have any further questions, feel free to email us at stoppests@cornell.edu.