



TREAT BEFORE YOU HEAT

By Anne Nagro

New research from the University of Florida shows applying insecticide, then heat treating, enhances bed bug mortality.

For pest management professionals battling bed bug infestations, there's a new protocol in town. University of Florida researchers have found applying insecticides *before* heat treating increases bed bug mortality.

While conventional wisdom says apply insecticides *after* heat treatment because high temperatures will degrade products, a three-month research project sponsored by Bayer found that heat treatments actually *enhance* insecticidal activity and make pesticides more readily accessible to bed bugs.

Here's what the researchers learned:

In most cases, insecticides "worked better after heat treatment than before," said University of Florida Entomologist Dr. Phil Koehler, who led the study. This was "counter-intuitive" as he thought products would break down "rather than become more active" when exposed to extreme heat.

In the study, Koehler and University of Florida Associate Research Scientist Roberto Pereira treated wood panels with one of four liquid and four dust insecticides, and then heated the panels for eight hours at 140°F. The heated panels were then returned to room temperature and bed bugs were placed on them for a two-hour period. The pests were transferred to a container and their mortality was monitored at various intervals. The process was repeated four times for each panel.

Koehler said the heat likely drew the liquid insecticide out of the porous surface of the unpainted wood, making it more accessible to the insects. Although the liquid dried when exposed to heat, it left behind a chemical residue sufficient to kill the bed bugs.

Heating "activated the chemical and we got better mortality after heating, so there's a benefit to putting it out *before* you heat treat as opposed to afterward," Koehler said. All liquid and dust products tested in the University of Florida study performed well in terms of efficacy.

Pesticides don't degrade significantly until temperatures top 300°C/572°F, which is a far cry from the 140°F reached during a typical bed bug heat treatment. Heat treatment doesn't change the active ingredients' crystalline structure, nor does it affect product volatility, said Bayer Field Development Representative John Paige. "It results in better bioavailability," he said.

Treating first also helps prevent new infestations or re-infestation of the account. As bed bugs move into cooler cracks and crevices to escape rising temperatures, they come in contact with insecticide applied in those areas, thereby enhancing control. This helps stop the bed bugs, which are nearly as mobile as cockroaches, from moving through walls and infesting surrounding apartments or hotel rooms, a common problem in the industry, according to Koehler.

"Bed bugs, from the standpoint of trying to survive, will move away from hot spaces and try to get to cool spaces," he said. "What you can do is kill them on

their way out of a room and prevent them from spreading to the next unit” by ensuring they encounter insecticide residues in wall voids, cracks and crevices, etc., when attempting to find relief from the rising temperatures.

Bayer sponsored the study to address PMPs’ concerns about heat treatment driving bed bugs into new spaces and to determine whether high temperatures would destroy pre-heat insecticide applications. “We had to answer that (question) with research,” Paige said.

The University of Florida study showed that in most cases, insecticides “worked better after heat treatment than before,” Koehler observed. “I think it’s going to change the way the pest control industry does heat treatments. It’s quite definitive what people should be doing.” **PCT**

The author is a frequent editorial contributor to PCT magazine and can be contacted via e-mail at anagro@giemedia.com.

BED BUG CONTROL WITH TEMPRID SC

Bayer’s financial support of research at leading universities throughout the United States is just one way it invests in the structural pest control industry. It also funds its own comprehensive R&D activities as evidenced by the introduction of Temprid SC Insecticide, a fusion of imidacloprid and beta-cyfluthrin that has proven effective against bed bugs and their eggs. In fact, in the University of Florida study, Temprid SC provided 100 percent mortality, both with and without heat treatments.

That’s not likely to surprise Jeremy Baumbach of ABC Pest Control, Des Moines, Iowa, who has had his share of bed bug issues during his 14 years in the industry, and found success using Temprid SC. “When people have bed bugs, they want them gone, and Temprid was on top of it,” he said.

Using the product has helped Baumbach reduce callbacks, cut back on labor costs and even helped business. “Because of Temprid’s flexible label, we’re able to go back to accounts after just seven days to retreat if needed, instead of waiting a full month,” he explained. As a result, customers are thrilled to have their problems taken care of quickly and efficiently.

For more information about Temprid SC, visit www.backedbybayer.com.



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