



Using SenSci™ Volcano® and ActivVolcano® to Evaluate Building-Wide Bed Bug Infestations in an 11-apartment Building in Pennsylvania

Study Design and Data Collected by Nina Jenkins and Giovani Bellicanta, Penn State University

Summary Written by Jeffrey White, Director of Innovation and Technical Content, BedBug Central
(edited and approved by Nina Jenkins and Giovani Bellicanta, Penn State University)

In May of 2016 an 11-apartment building in State College, PA reported bed bugs being found throughout the building. Various apartments had reported bed bugs to the management and units were heat treated in response to the tenant reports. In May 2016 a heavily infested apartment was found when the tenants gave notice to the management and was subsequently vacated by the residents prior to any remedial treatment being initiated (Unit 21). The vacant, heavily infested apartment was determined to be the source of the bed bug infestations found throughout the building and bed bugs were most likely dislodged and spread during the move out process. In an effort to determine which apartments were infested with bed bugs, SenSci Volcano and ActivVolcano were placed in all 11-apartments and the hallways for four weeks and subsequently evaluated along with a visual inspection.

Methodology

A few days after heat/chemical treatments in the units #14, #21, #24, #31 and #34, all apartments, except unit #21 received 12 SenSci monitors (six Volcanos and six ActivVolcanos), placed throughout the apartments (see image below). All monitors were placed approximately five feet apart and catch data evaluated two weeks after installation (July 21st). After evaluation, the positions of the paired Volcano and ActivVolcano monitors were switched and the catch data re-evaluated two weeks later (August 4th).

Results

Two weeks after installation of the monitors, bed bugs were detected in two out of the 10 apartments (Units 31 and 33). When the monitors were inspected four weeks after installation, an additional three apartments were found to have bed bugs (Units 11, 22 and 24) for a total of five out of 10 apartments with bed bug activity. In addition to the five apartments, bed bugs were detected in monitors located in the 2nd floor hallway on both inspection dates. All of the apartments that were found to have bed bugs with the monitors were also found to have bed bugs with a visual inspection. Visual inspection failed to detect bed bugs in any of the five apartments where bed bugs were not detected in monitors (no bed bugs were found through visual inspection or the use of the monitors).

Amongst all apartments and hallways 32 bed bugs were detected by the monitors. Of those bed bugs, 26 were detected by ActivVolcano and six by Volcano. Activ® bed bug lure increased the catch of Volcano by more than 400%. Of the 32 bed bugs collected by the monitors, 24 were immature bed bugs (75%) while eight were adults (25%). The percentage of adults captured is higher than that of many field studies using other types of interceptor traps demonstrating that ActivVolcano and Volcano is an effective trap for both immature and adult bed bugs.

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Results (continued)

Lastly, of the five apartments that were found to have bed bugs, two of the apartments were confirmed to have infestations by both ActivVolcano and Volcano (Units 31 and 33), while the other three apartments only ActivVolcano detected bed bugs (Units 11, 22 and 24).

Discussion

After treatment in the heavily infested apartment and additional units, ActivVolcano detected all five bed bug infestations that were known to exist in the apartment complex within four weeks of being installed in the apartments. Activ increased the catch of Volcano by more than 400% over the course of the study and found three additional infestations that Volcano alone missed. Lastly, ActivVolcano and Volcano captured 32 bed bugs, 75% of which were immature. Previous studies on bed bug population dynamics have found that the average bed bug infestation is 75% nymphs and 25% adults as found in this study.

