

Report

**Laboratory evaluation of an experimental trap for trapping bed
Bugs**

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Objectives. To determine the effectiveness of a “heated outlet trap” for trapping bed bugs.

Materials. One “heated outlet trap” provided by Scott Soltis.

Insects. A field population (Sterling strain) of bed bugs was used. The insects were collected from an occupied house 1-4 d prior to the experiments. They were not fed between collection and prior to the experiments.

Methods. A 0.6 x 1.2 m arena made of plywood as bottom and Plexiglass as walls was used. Talcum powder was applied to interior wall surfaces to prevent escaping. A heated outlet trap and a sticky trap (Catchmaster #288-1, Atlantic Paste and Glue company, NY) were placed in the arena (Fig. 1).

In the 1st experiment, 40 male bed bugs were released at the center of the arena and confined with a 6 inch diameter plastic ring for 9 hours. The ring was removed at 6 pm. The outlet trap was connected to the outlet which was connected to electricity source. The trap catches were examined next day at 3 pm.

The 2nd experiment was conducted immediately after finishing the 1st experiment. The injured or trapped bed bugs in the 1st experiment were replaced with healthy bed bugs. The trap catches were examined 24 h later.

The 3rd experiment was conducted two days after the 2nd experiment. Thirty six 3rd to 5th instar nymphs and 5 adult females were released at the center of the arena. The experiment was started at 1:30 pm. The bugs were not acclimated as those in the 1st experiment. The trap catches were examined after overnight.

In all three experiments, the same outlet trap and sticky trap were used. The experiments was conducted at 20.6-23.2 °C, 12:12 L:D light cycle. The temperature of the room and edge of the outlet trap were measured using a digital thermocouple meter (Digi Sense).

Results. The edge of the heated outlet trap measured at three times were: 25.0, 24.3, and 27.8 °C, respectively. The temperature of the heated outlet trap also varied at different locations of the edges.

In the three experiments, 12.5, 2.5, and 53.7% of the released bed bugs were found in the heated trap, respectively (Table 1, Fig. 2). No bed bugs were caught in the Catchmaster sticky trap.

Discussion. The large variance in the number of bed bugs found in the heated outlet trap indicates experimental conditions significantly affected the trap catches. Bed bugs that are

acclimated for a few hours or a day were less likely being trapped than those were released immediately before the experiment.

Table 1. Comparison of trap catches in three experiments.

Experiment	Heated outlet trap		Catchmaster sticky trap
	Under trap cover	On sticky surface	
I	3	2	0
II	0	1	0
III	7	15	0