

# OSU Entomology Report Synopsis

## Evaluation of Greenway Formula 7 for Management of Ticks and Bed bugs

### Objective:

To determine the efficacy of a proprietary formula developed by American Achievers, LLC. Tests were made of their product Greenway Formula 7 for management of ticks and bed bugs.

### Location:

Laboratory Evaluation  
Insect Physiology Laboratory  
333,335 Noble Research Center  
Oklahoma State University-Stillwater, OK

Year: 2012

### Rationale:

In Oklahoma, ticks are the vectors for animal and human infections including Rocky Mountain spotted fever, anaplasmosis and ehrlichiosis. The immature, nymphal tick life stage is the most important for disease transmission. Nymphs are difficult to see and can inject pathogens into a host virtually unnoticed. In addition, Oklahomans are encountering bed bugs in many high density living environments including hotels and university dormitories. Bed bugs are highly adapted to human habitations and feed almost exclusively on human blood. Bed bugs do not transmit any diseases, but are the source of irritation and allergy to its human hosts. Finding effective and safe treatment methods to eradicate these blood feeding arthropods is essential because ticks and bed bugs are becoming pesticide-resistant.

### Target Organisms:

Nymphs of *Amblyomma americanum*, Lone star tick; *Dermacentor variabilis*, American dog tick; and *Ixodes scapularis*, Black-legged/Deer tick: Immatures and adults of bed bugs, *Cimex lectularis*.

### Experimental Design:

For each arthropod and life stage, three replicates were done. Small plastic condiment cups were utilized to contain the ticks and bed bugs. A 100% concentration of Greenway Formula 7 and three one-tenth dilutions of the formula were impregnated on glass filter discs and placed in cups. All dilutions were made with inert mineral oil. Additionally, a control treated only with mineral oil was used. Twenty ticks or ten bed bugs were added to each plate. All plates were stored in 96% relative humidity room with temperature and room photoperiod. Mortality was checked after one hour, 24 hours and 7 days.

### Results:

For all replicates, both bed bugs and ticks, at one hour, no mortality was seen. For all replicates, at 24 hours, the 100% treatment of the Greenway Formula 7 (**non diluted**) solution killed all the ticks, all the immature bed bugs and 90% of the adult bed bugs. For all replicates, at seven days, the 100% treatment of Greenway Formula 7 (**non diluted**) solution killed all the bed bugs. For all replicates and all other treatments including control with the *diluted version*, there was 0-10% mortality with the ticks and bed bugs and did not vary over the course of a week. Bed bugs were not repelled with the *diluted version* of the Greenway Formula 7 solution and repellency for ticks could not be determined. Ticks always moved upward and away from the filter. Bed bugs stayed on or near the filter disks.