# THERMACELL PRO UNIVERSITY
# Lab Study

## Tick Control Tubes Kill Ticks Feeding on Mice

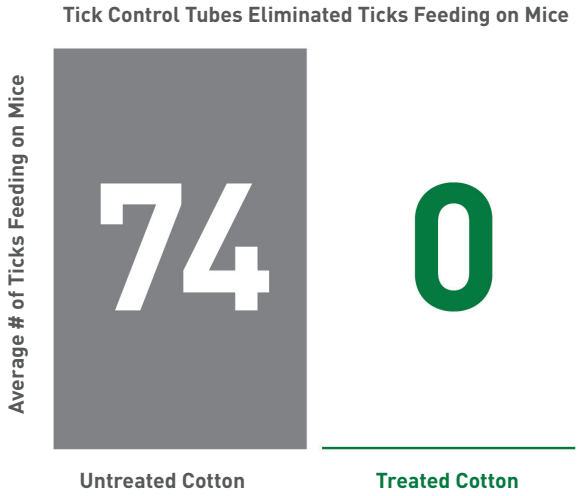
### Background

Lab studies were conducted by the Tick Encounter Resource Center at the University of Rhode Island to determine how Tick Control Tubes eliminate blacklegged ticks (Ixodes scapularis) on white-footed mice (Peromyscus leucopus), an important reservoir for tick-borne diseases and the primary carrier of the Lyme disease bacteria.

### Procedure

The study examined the effectiveness of tick tubes pre- and post-infestation of mice by blacklegged ticks. In the first experiment adult mice were exposed to cotton material (untreated or permethrin treated) and then exposed to 100 larval and 12 nymphal ticks. In the second experiment, the adult mice were first exposed to 100 larval and 12 nymphal ticks and then later provided the cotton material (untreated or treated with permethrin). In both experiments, mice were held in mesh cages over water for up to 5 days and all detached and engorged ticks were removed and counted.

### Results




In the first experiment, 74 ticks on average fed on mice exposed to the untreated cotton, while no ticks fed on the mice exposed to the treated cotton. Virtually all the ticks exposed to treated mice died in under two hours. In the second experiment the results were similar with 70 ticks on average feeding on mice exposed to untreated cotton and no ticks feeding on mice exposed to treated cotton.

### Conclusion

The laboratory study confirms the effectiveness of tick control tubes for ridding white-footed mice of blacklegged ticks, the most important reservoir and vector respectively for Lyme disease.

The results of pre-infestation and post-infestation exposure to treated cotton demonstrates that tick tubes will eliminate ticks on mice in the field, even if ticks have already attached to mice before the application of the tubes.

The study further clarifies the mode of action of the tick tubes in showing that mouse fur acquires permethrin in nesting with treated cotton at levels that are toxic to the ticks.

The findings of the study are consistent with the results of multiple field studies that have universally demonstrated that tick control tubes significantly reduce tick loads on mice.