THERMACELL PRO UNIVERSITY
Spray Field Test

Sprays Don't Eliminate All the Backyard Ticks; An IPM Approach is Needed

Overview

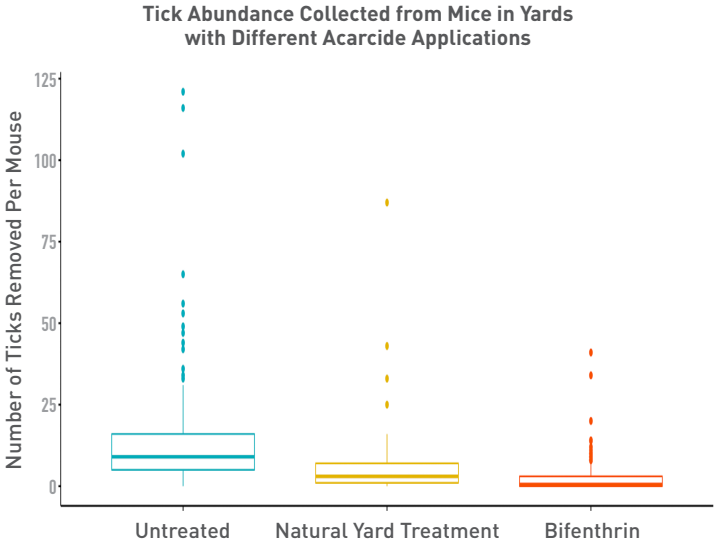
Dr. Thomas Mather and team at the University of Rhode Island TickEncounter Resource Center conducted a field study in the spring and summer of 2019 in backyards sprayed by professional pest control operators to determine whether mice residing in these yards still had some level of tick infestation.

Approach

This study followed a matched design, where 10 properties were assigned to each factor treatment (synthetic spray, natural spray, no spray); properties were similar in size and matched according to degree of tick habitat and vegetation type. Bifenthrin and cedar oil treated yards were selected from customer lists of three commercial tick management companies. Untreated sites were recruited from comparable residences in the same neighborhoods.

White-footed mice (Peromyscus leucopus) were live-captured by placing oat and cotton baited Longworth traps around the wooded perimeter of the yards, and all captured mice were examined for attached ticks.

Field Test Data



Site Treatment	Total Mice Captured	Average Ticks Removed Per Mouse	Maximum Ticks Per Mouse
Untreated	145	14.9	121
Natural	99	5.6	87
Bifenthrin	156	2.6	41

Discussion

Bifenthrin (2.6 ticks/mouse) and natural sprays (5.6 ticks/mouse) reduce the immature tick burden on mice versus untreated control yards (14.9 ticks/mouse) but do not eliminate ticks on mice. **As many as 41 immature ticks were found on a mouse from a bifenthrin-treated yard and the mean number of ticks per mouse ranged from 1-11 (See Image 1) in individual treated yards (for both bifenthrin and naturals)** versus 7-38 ticks per mouse in individual untreated yards.

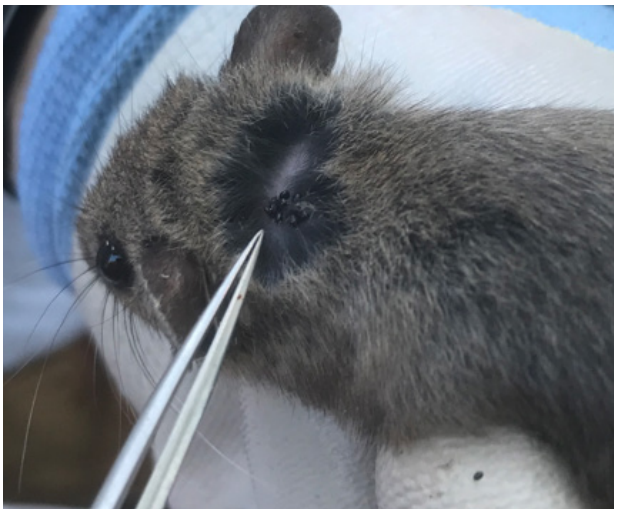


Image 1
Mouse from bifenthrin yard with cluster of 11 larval ticks

These results capture each mouse at a particular moment in time. Additional new ticks will continue to attach to these mice and engorged ticks will drop off over the course of the summer.

The continued presence of ticks on mice in sprayed yards allows the Lyme disease cycle to continue as the disease circulates between mice and ticks. As a result, there is a constant risk of people and pets contracting Lyme and other tick borne diseases, especially if spray timing isn't right or spray application isn't thorough enough due to environmental factors (wind, rain), applicator error or other issues.

Conclusion

Implementing an integrated management program using tick control tubes in addition to spray programs reduces the risk of disease transmission by killing ticks feeding on mice, the primary carrier of the Lyme disease bacteria.