

Central Mass. Mosquito Control Project:

Research & Efficacy 2008



Barrier Treatment Trials Using SUSPEND®

This past summer CMMCP conducted a field trial of the residual adulticide SUSPEND® (deltamethrin) to the foliage around a local recreational field. Surveillance traps were placed in the treatment area of the field as well as a nearby control site of similar characteristics. Collections were made at both sites starting 4 weeks before the initial application and ending 5 weeks after the final treatment.



Modified barrier sprayer used in SUSPEND® field trials in 2008

Initial results show that control was achieved and continued until surveillance ceased, although cold evening temperatures contributed to low collection numbers overall for the treatment and control trap sites. With experience gained in these initial trials, CMMCP plans to further evaluate SUSPEND® as a barrier treatment in the upcoming seasons, with the hope of obtaining another valuable tool for the suppression of potential vectors in virus situations.

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Host Seeking Mosquito Activity Study

In conjunction with CMMCP's other research projects, mosquito surveillance data was collected using programmable bottle rotators to help to determine when certain species are host seeking. Activity data on species of importance would be beneficial for vector control efforts for MCPs in knowing when the most effective period for adulticiding would be. This project focused on mosquito activity from just prior to sunset through just after sunrise.



Diet Study of the Little Brown Bat, *Myotis lucifugus*



Along with Bristol County Mosquito Control and Dr. Thomas H. Kunz of Boston University, CMMCP assisted in a diet composition study of *Myotis lucifugus*, the Little Brown Bat. Mosquito surveillance was conducted around the area of a bat colony and specimens were submitted with the intention of analyzing the bat droppings for the genetic markers of specific mosquito species. Once analyzed, those results can be compared to the surveillance data as well as other factors to determine the extent of mosquito feeding by this species of bat, and possible impact level.

Continued Bottle Assays for Resistance to ANVIL® 10+10

Resistance testing by bottle assays also continued this summer, using the established baseline concentration from the previous year. In this second season using ANVIL® 10+10, trials showed no signs of any significant resistance development in the local mosquito populations. Plans for next year include expanding the collection areas for test mosquitoes, due to the tendency for resistance to be localized.



A typical laboratory setup at CMMCP for resistance testing using bottle assays

Other plans include an increased numbers of trials, and possibly further analysis of specific collection site changes in resistance levels over the three consecutive years of formal resistance testing. CMMCP may also collaborate with other MCPs to develop a larger range of resistance surveillance data for the State of Massachusetts.

Additional Projects & Possible Future Studies

Mosquito Adulticiding Impacts on Non-target Species; *Aedes albopictus* Surveillance Using BG Sentinel Traps; Species Composition and Population Dynamics of Massachusetts Retention & Detention Basins in the Central Mass. Area; The Attractiveness of Ovitrap Cups