ST. SIMONS ISLAND, GEORGIA

Mole Cricket Pheromones

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(First year of support)

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This report summarizes the first year of intense research activity devoted to isolating and utilizing pheromones to affect mole cricket population dynamics on golf courses. Biologically active materials were found and, with further refinements, may be produced for commercial marketing. No previous research has been done with mole cricket pheromones. The current research could potentially develop into a new and environmentally sound approach to managing turf insect pests.

Various glands and body parts were dissected from both male and female crickets. During the cricket flight season, acetone homogenate of the spermatheca (♀ crickets) and an unknown gland (♂ crickets) were biologically active and appeared to act as attractants (sex or aggregating pheromones). An alarm substance from the rectum (♀ and ♂) significantly reduced "fly-in" crickets. Additional tests are needed to improve on the pheromone dispensing system and to further refine optimum rates needed for activity.

Late season tests with the alarm substance formulated in spray mixes and applied to turf had no apparent influence on crickets.

Results of the first year's study are extremely encouraging. The attractants and the alarm substance may eventually fit well into a pest management system by influencing the population dynamics of crickets, i.e. concentrating crickets into one area while repelling them from others. Such uses could reduce our total dependence on insecticides by reducing the turf area requiring treatments.

Although no previous work has been done with mole cricket pheromones, the concept has been used successfully in eradication programs for several insect pests of agronomic importance and millions of dollars have been saved.