Thresholds/Monitoring/Sampling

FIELD ATTRACTION OF CONSPERSE STINK BUG TO SYNTHETIC PHEROMONE SOURCES.

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INTRODUCTION

The use of the primary component of *Euschistus conspersus* aggregation pheromone continues to be the focus of efforts to monitor and control this damaging pest in NCW orchards. In the past we have been able to attract bugs to baited plants, and to the vicinity of baited traps. Research in 2000 focused on elucidating some of the underlying mechanisms of this attraction – when bugs are attracted to pheromone, how quickly they form/disperse from aggregations, and from what distance. These are all key factors in assessing where, when and how to use the pheromone for monitoring/management.

METHODS AND MATERIALS

Timing of attraction/reproductive status + speed of aggregation-dispersal: These questions were addressed using mullein plants baited with polyethylene vials filled with methyl 2,4-decadienoate. Bugs were counted in both overwintered (reproductive) and summer (pre-reproductive) generations, with unbaited mullein plants acting as controls. Bugs were removing at each count in the first series of experiments, designed to determine attractiveness of baited plants. However, in the experiment investigating the timing of aggregation bugs were not removed from the plant throughout the 2 week duration of the experiment. Bugs were counted daily throughout the experiment, and the lure removed from baited plants after 7 days to investigate the amount of time until the bugs dispersed from baited plants.

Attractive radius of pheromone lures: A mark/release/recapture experiment was conducted to investigate the attractive radius of the pheromone. Colour-coded marked adult bugs in both the spring and summer generations were released at distances of 10, 25, and 50 m from pheromone-baited mullein plants. 300 bugs were released/distance/rep and the experiment was replicated four times. Numbers of marked bugs at the baited plant were counted daily for 7 days following release. Numbers of unmarked bugs were also recorded for estimates of total wild stink bug populations in the sampling area.

RESULTS AND DISCUSSION

Timing of aggregation/reproductive status: Adult bugs were significantly attracted to baited plants in both spring (reproductive) and summer (pre-reproductive) generations. The sex ratio of attracted bugs was close to 50:50. This is encouraging from a management standpoint as it may allow for the development of attract-and-kill strategies that target the spring, reproductive

generation before the vast majority of eggs have been laid. This will reduce populations, and hopefully damage, later in season.

Timing of aggregation/speed of aggregation: Bugs appeared to reach maximum densities upon baited mullein plants very rapidly after baiting, usually within 24-48 hours. After this initial period of high recruitment, bug numbers remained relatively stable until lures were removed from baited plants. Following lure removal, aggregations began to disperse immediately and had reached the levels of unbaited mullein plants after approximately 2-3 days. This data suggests that the lure has a relatively short attractive radius, a hypothesis that was tested in the following experiment.

Attractive radius: The vast majority of bugs recaptured were from the 10 m release distance in each replicate (Fig. 1). Very few bugs were recaptured from the 25 and 50 m releases. This suggests the pheromone (as released by our devices), has a relatively short-range activity area. This was not surprising, given the gregarious nature of these insects and their overall ecology. This information provides a possible starting point for studies of the feasibility of aggregate-and-kill or bait stations for stink bug management on orchard borders.

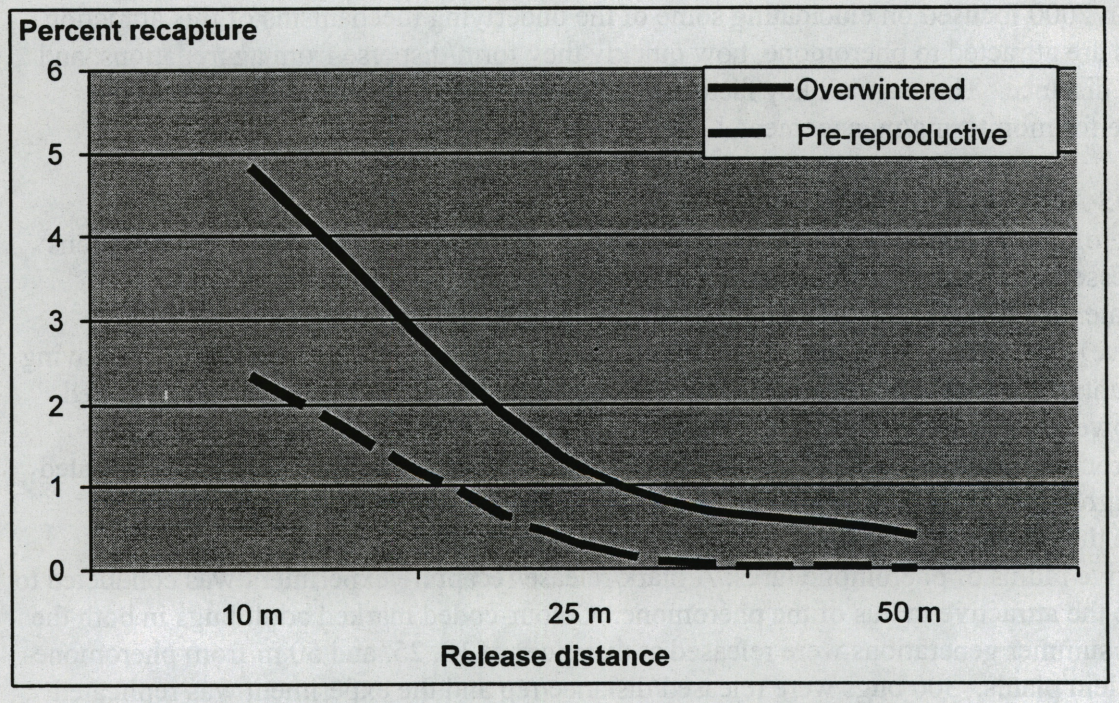

Figure 1. Percent recapture of marked E. conspersus released at 10, 25 and 50 m from pheromone-baited plants.