

Mating Disruption/SIR

Attraction of Obliquebanded Leafroller Males to Various Natural and Synthetic Sex Pheromone Blends

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Abstract: The response of Michigan male obliquebanded leafroller, *Choristoneura rosaceana*, moths to females from three different geographical regions was studied in replicated field trials during 1999. Our goal was to determine the optimal pheromone blend for monitoring the phenology and abundance of this insect in Michigan apples. Traps were baited with either a rubber septum loaded with synthetic pheromone blends or with a live female from different US regions to study the importance of pheromone blend in mate attraction. Data from the first flight show that Michigan males have a significantly higher attraction to females from western regions than to females from the east. The possible reasons behind this attraction are discussed in relation to the synthetic lure data and pheromone gland extract data.

Live Female Trials

Larvae from Michigan, Oregon and New York were collected and reared on apple foliage until pupation. The females were allowed to eclose and were placed individually in small wire mesh cages for their second scotophase. These cages were then placed inside large Delta traps and placed in orchards at the Trevor Nichols Research Center in Fennville, MI. The numbers of males being caught in these traps were recorded each morning for 4 consecutive days. Results were as follows (Figure 1).

Lure Trials

Three sets of red rubber septa lures were made. The first set had varying amounts of E11-14 Acetate (10, 40 100 µg). The second set of lure trials had varying amount of Z11-14 Alcohol (10, 50, 100 µg), and the third set of lures had varying amounts of Z11-14 Aldehyde (0, 20, 80 µg). All other components in a particular trial were kept at a constant ratio and the total load was approximately 1 mg. Lures were set in orchards in three regions, Oregon, Michigan, and Pennsylvania, to test the response of males to different lure blends. Results show that Oregon males were sensitive to all components being varied, with a significant attraction to high levels of Aldehyde and low levels of Alcohol and E-Acetate. Pennsylvania males showed a significant difference only to changing Alcohol blends. Michigan moths showed significant differences in attraction only to the E-Acetate ratios, being more attracted to the middle level.

Gland Extracts

Colony females from the three regions in which the lure trials were conducted (Oregon, Michigan, and Pennsylvania) were analyzed for their pheromone gland content. Gland extracts were made during their second scotophase, two hours after lights went out. Results show the following (Table 1).

Conclusions

Michigan male attraction to live females from Oregon was most likely based on amount of pheromone given off by the females, not on the blend. Males from different regions show a differing sensitivity to changing pheromone blends, with Oregon moths being sensitive to all components.

Table 1.

	ZII-14 Acetate	EII-14 Acetate	ZII-14 Alcohol	ZII-14 Aldehyde	# glands extracted
OR	249.2 a 86%	10.8 a 4%	27.4 a 9%	2.8 a 1%	44
PA	46.8 b 92%	2.5 b 4%	1.8 c 4%	0 b 0%	42
MI	24.8 c 79%	1.4 b 4%	5.5 b 17%	0.1 b 0%	20

