

Pome Fruits—Thresholds, Monitoring and Sampling

Correlation of Fall Campyloomma Adult and Spring Campyloomma Nymph Population Densities

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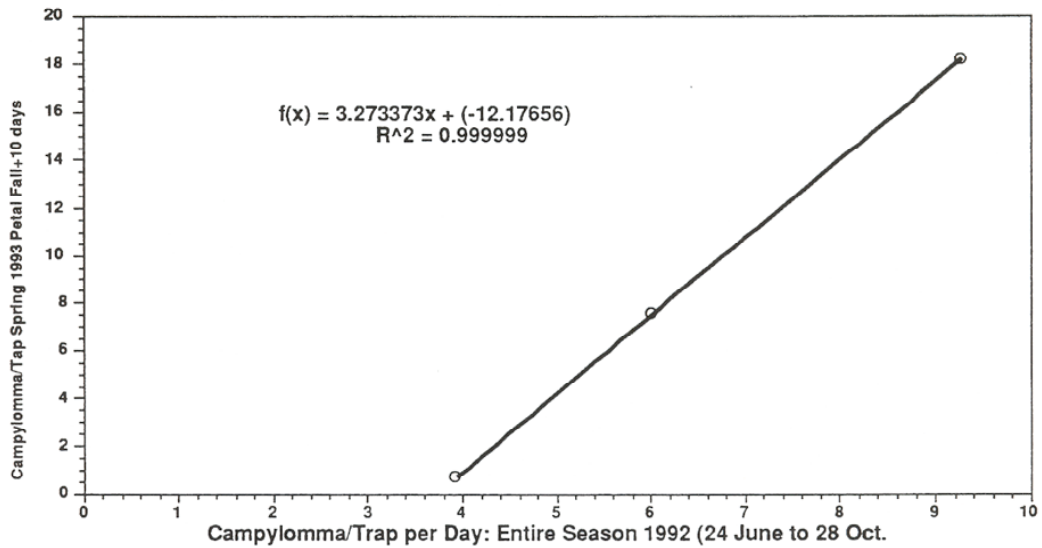
Canadian workers have identified and synthesized a campyloomma pheromone. These same investigators have presented evidence that suggests a correlation may exist between fall catches of adult campyloomma in pheromone baited traps and nymph densities the following spring. If we can show that a similar correlation exists in Washington, we may be able to use fall trap catches to identify high-risk orchards and act as an early warning system for detecting campyloomma problems.

Thirteen commercial blocks, all approximately one acre, and six research blocks (three received no spring insecticides [phenology blocks] and three received a standard pesticide program) were used in this study. All of the above blocks contained pheromone traps in 1992 and were limb-tap sampled (20 trees/block) on at least three occasions in the spring of 1993, at pink, full-bloom and petal-fall or 7 to 10 days post-petal fall. Three blocks (phenology blocks) were sampled three times per week beginning 7 April. The number of nymphs from each tapped limb was recorded. A simple linear regression was used to examine any correlation between 1992 trap catches and 1993 spring nymph densities. The mean daily trap catch per block for the entire 1992 trapping season and fall 1992 only (2 September-28 October) was compared against full bloom, petal-fall and post-petal fall nymph densities.

Due to differences in management practices the three phenology blocks (they received no early chemical treatments) were analyzed separately from the other blocks.

The strongest correlation was between the entire 1992 trapping season's average daily trap catch and spring 1993 10-day post petal nymph densities ($R^2 = 0.9999$; three sites) in the phenology blocks. All other phenology block comparisons also produced strong correlations ($R^2 > 0.9000$). Unfortunately there were only three data points for phenology block regressions, which may have inflated the correlation coefficients for these sites. The best correlation in commercial sites was between the entire 1992 season's average daily trap catch and the spring 1993 10-day post-petal fall nymph densities ($R^2 0.5368$; seven sites). Correlation was poor when 1992 fall trap catch was compared with post-petal fall nymph densities in commercial blocks ($R^2 0.1023$). All other comparisons in the commercial sites also produced poor correlations ($R^2 < 0.1000$).

1992 Trap Catch/ Spring 1993 Nymph Densities
Correlation: Unsprayed Phenology Plots



1992 Trap/ Spring 1993 Tap Correlation
Standard Treated Plots

