Pome Fruits—Implementation

Dual Release Dispenser for Checkmate™ CM

J.M. Gillespie
Bend, OR

Keywords: Checkmate, dual release, codling moth

Extensive field aging studies to quantify CheckMate™ CM's pheromone release rates under spring and summer temperature conditions were conducted in varied locations during 1991. The data generated in the early spring study clearly showed that little or no pheromone was released from the current dispenser. In consultation with engineering colleagues at Bend Research, Inc., a "dual release" dispenser was designed and field exposed to evaluate release at both cool (-2 to 18°C) and warm (25 to 40+°C) prevailing temperatures.

For the spring test dispensers were placed in trees in a southern exposure and sampled periodically over a 60-day period. For the late summer test, dispensers were mounted on dowels in full sun exposure over a river rock bed and sampled weekly for 7 weeks. At each sampling interval, 4 dispensers were randomly collected and subjected to GC analysis to determine percent of pheromone (codlemone, i.e., E,E-8,10-dodecadien-l-ol) remaining in the entire dispenser. In both studies, pheromone remaining was quantified independently for the spring and summer release membranes, except for the final sampling date in the spring test where the entire dispenser was subjected to GC analysis. The graphs show the average percent of codlemone remaining in the dispenser at each interval and the temperatures on a daily basis.

Codlemone was consistently released from the dual dispenser during the time intervals studied. A total of 60% of the pheromone load was released during the spring; all of the pheromone was released in the late summer test. All of these data will be incorporated as a heat unit based model is developed to describe product release and longevity on both calendar days and temperature bases.