

Biology/Phenology

Codling Moth Emergence from Bin Piles

Brad Higbee, Carrol Calkins, and Chey Temple  
USDA-ARS, Wapato, WA

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**Objectives**

1. To determine if solar heating of bin piles by covering with plastic sheeting will force diapausing codling moth pupae to emerge prematurely thereby minimizing their impact on adjacent pome fruit plantings.
2. To characterize emergence patterns from bin piles in order to understand how infested bin piles influence codling moth populations in nearby pome fruit plantings.

**Methods**

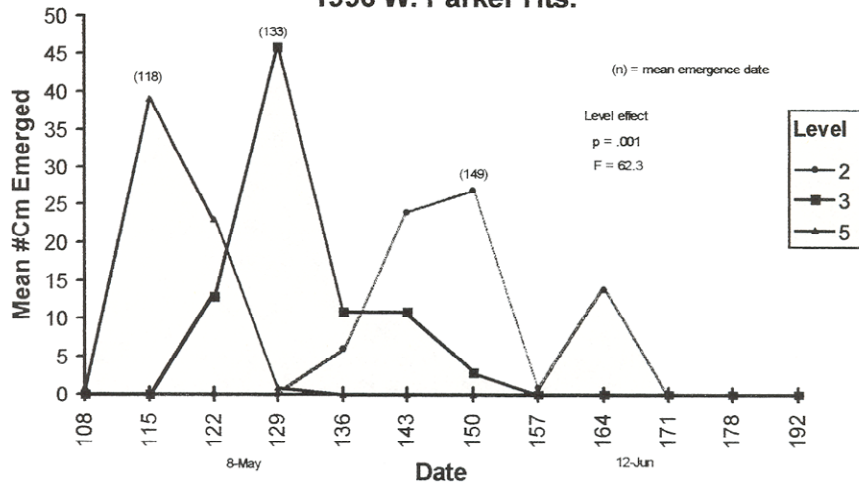
Pairs of bin piles 6 bins high by 6 bins wide by 6 bins long were constructed at 3 sites in the West Parker Heights areawide project. Clear plastic sheeting was wrapped around one bin pile at each site. Lab reared, diapausing codling moth pupae, contained in cages, were placed at 3 levels (high, middle, low) and 3 positions within each level along with temperature probes connected to a data recorder. Cages were checked once per week and emerged moths recorded.

**Summary**

Analysis of adult emergence patterns based on mean date of emergence indicated significant differences between treatments ( $F=666$ ,  $p=.0001$ ) and between levels (treatment x level interaction,  $F=56$ ,  $p=.001$ ). Analysis by treatment indicated significant differences between levels in the plastic treatment ( $F=62$ ,  $p=.001$ ) and the uncovered treatment ( $F=207$ ,  $p=.0001$ ). Tukey means separation test was used to rank order of emergence by level: for the plastic treatment the order of emergence was high>middle>low; for the uncovered treatment middle>high>low. The number of days over which the moths emerged was similar (about 50 days), but the moths in bin piles covered with clear plastic emerged 25 to 30 days earlier than those in the uncovered bin piles. Daily high temperatures averaged 10 to 20°F warmer in plastic covered bin piles and there was a distinct gradient from lower to higher levels with increasing temperatures encountered at the higher levels. Figures 1-2 show emergence dynamics in the two treatments and a comparison of mean emergence date between sites.

This information could be important in developing a technique for neutralizing codling moth infested bins and in understanding how infested bins may be influencing pest management in fruit orchards that receive bins for harvest from large bin piles or are located near bin piles.

**CM Emergence From Clear Plastic Covered  
Bin Piles  
1996 W. Parker Hts.**



**CM Emergence From Uncovered Bin Piles  
1996 W. Parker Hts.**

