

## Thresholds, Monitoring and Sampling

### OVIPOSITION PREFERENCE OF CODLING MOTH BETWEEN CUT AND UNCUT FRUIT OF BARTLETT, BOSCH AND BEURRE HARDY CULTIVARS IN THE SACRAMENTO VALLEY

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An egg presence method for monitoring codling moth in a pear orchard with multiple varieties was studied. Wounded and intact fruit cluster samples were examined at 950 – 2200 degree days (88°F/50°F basis) for new oviposition at intervals from the B peak of overwintering adult flight through the early second generation flight of the A peak. The period encompassed 28 days before first Bartlett harvest to 7 days after. Paired sample trees for comparison were adjacent in the orchard. In the case of cut fruit cluster samples, a 2-3 cm diameter portion of epidermis and cortex 0.5–1 cm maximum depth was removed from one fruit in a cluster on the east side of trees, at eye level, one week prior to assaying for egg presence on the attached fruit. The test orchard was 40 acres of Bartlett pears, 200 trees/acre with a pollenizer tree of Beurre Hardy or Comice every 10 trees every 5 rows. A 4-acre area of Bartlett interplanted with Bosc provided test trees for Bosc:Bartlett comparisons. The orchard has had a high codling moth population over the years.

#### **Results and Discussion**

Intact Bosc and Hardy fruit were much preferred over intact Bartlett prior to harvest (Fig. 1). Wounding fruit with a cut resulted in increased codling moth oviposition compared with intact fruit in the case of Bartlett and Hardy but not in the case of Bosc (Fig. 2). The response to cut fruit diminished as the interval before harvest decreased in the period studied. Wounded Bartlett fruit were preferred over intact Hardy, but not to as great a degree as wounded Hardy over intact Bartlett. In two late season tests, intact Bosc was not preferred over wounded Bartlett, but wounded Bosc was hugely preferred to intact Bartlett (Fig. 3).

These results are in agreement with the hypothesis that a certain attracting factor(s) is present in fruit during the period tested. The detectable presence of this factor(s) as measured by increased codling moth oviposition may be augmented by wounding, except less so in the case of Bosc where the factor is very strong from intact fruit. As the fruit matures, the factor(s) begins to be more prevalent without wounding in the cases of Hardy and Bartlett, also, so that oviposition preference for cut fruit or for earlier preferred intact fruit decreases as harvest approaches. The results suggest that the presence of mated female codling moths might be monitored through the use of oviposition biased sampling of wounded fruit during the period studied in Bartlett or Beurre Hardy orchards or by Bosc sampling in mixed Bosc and Bartlett orchards.

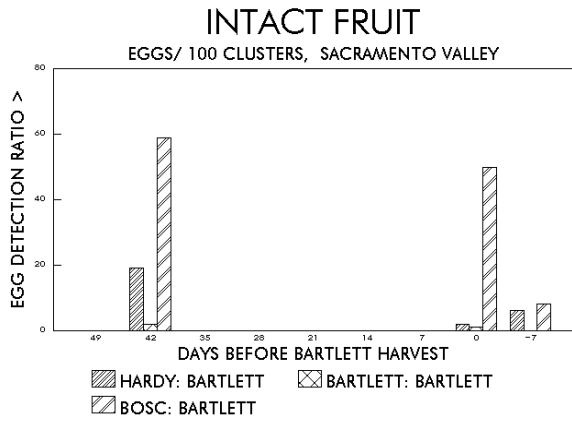


Figure 1.

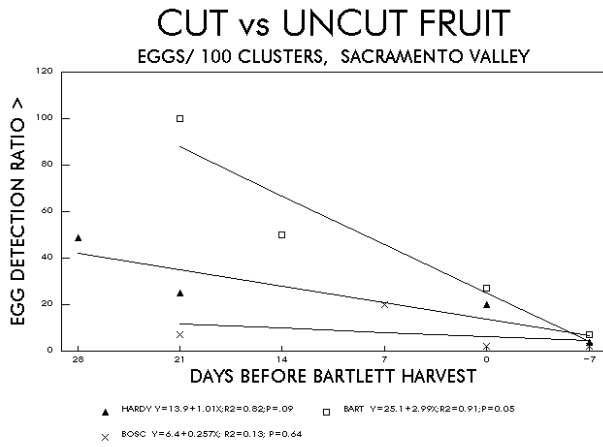


Figure 2.

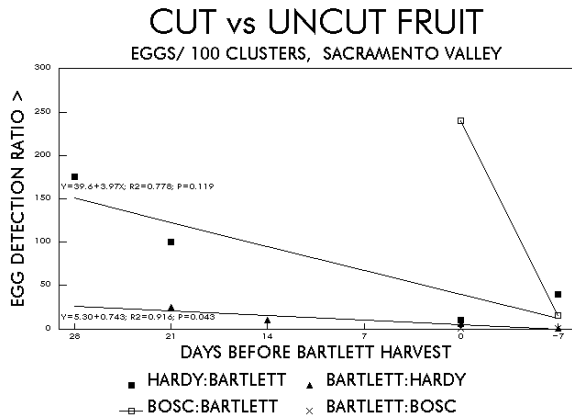


Figure 3.