

Pome Fruits—Chemical Control

Campylomma verbasci

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Campylomma has been an increasingly difficult pest to control in Washington. It is a facultative zoo-phytophagous Mirid bug which overwinters and passes one or more generations on tree fruits and completes its life cycle on weed hosts. It is primarily a pest of apple, stinging the fruitlets before, during or after bloom. The resulting scar is a black, corky spot, often surrounded by a depression. Scarring and deformity can be extensive if multiple stings are inflicted. Golden Delicious is apparently a preferred variety, although red sports of Delicious are also readily attacked. Pear fruits are damaged only if population pressures are very high; however, on pear this bug is usually considered a useful predator of pear psylla.

Although a multifaceted IPM program for *campylomma* control has been initiated, the 1991 work concerned only timing and materials for chemical control. Test 1 was conducted in a 'Bisbee Delicious' orchard with trees <2 m tall. Treatments were replicated 6 times, with each replicate consisting of 3 contiguous trees. Treatments were applied to the point of drip with a handgun sprayer operated at 200 psi. Per acre rates were based on a dilute application of 400 gal/acre. Nymphs were sampled by limb tap on to a 45 x 45 cm tray covered with black cloth, with three taps per replicate (1/tree). Trees in test 2 were 'Golden Delicious' >6 m tall. Treatments were replicated 4 times, and each replicate consisted of 1 tree. Treatments were applied to the point of drip with a handgun operated at 350 psi. Nymphs were sampled as described above, except that 2 taps were made per replicate. Fruit evaluations were made before hand thinning and before harvest. In test 1, 40 and 80 fruits/replicate were examined at the two periods, respectively. In test 2, 40 and 120 fruits/replicate were evaluated. Fruits with 1 or more stings were considered culls.

In test 1, nymph populations and damage in the control was moderate. Post-treatment nymph densities were significantly lower than the controls (data not shown). However, only those treatments that included a spray application on the earliest spray application date (regardless of the material) had preharvest damage levels that were significantly lower than the control (Fig. 1). The double vs. the single application of Carzol did not improve damage reduction. In test 2, the damage in the control was severe; however, none of the treatment means was significantly better than the control at the preharvest fruit evaluation (Fig. 2). High damage levels occurred even though post-treatment nymphs densities were significantly lower than the control (data not shown).

Severe variability in nymph populations have and will continue to make chemical control of this pest difficult to evaluate. Despite the lack of statistical significance in damage, test 2 results support the trend noted in test 1 that less damage results when sprays are applied as early as possible.

A separate test was conducted to assess the impact of campyloomma sprays on *Typhlodromus occidentalis*. A commercial orchard with a high Typh population was located, and spray applications were made shortly after petal fall. Both Lorsban and Carzol suppressed populations of Typhs until later in the season in comparison to the checks (Fig. 3). Ultimately, however, populations of Typhs rose higher in the treated trees than in the checks, probably because rust mites built up in the absence of early season predation. No flareups of tetranychid mites occurred in either the Carzol or Lorsban plots.

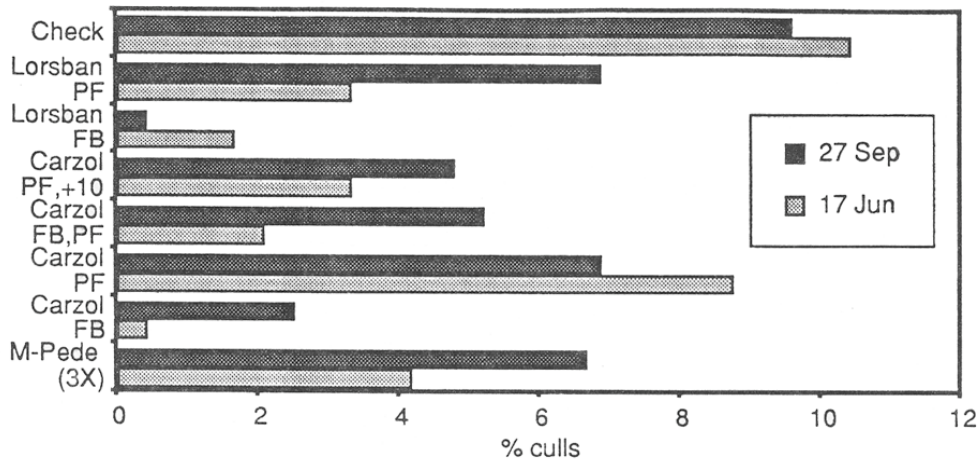


Figure 1. Pre-thinning and preharvest fruit damage by Campyloomma, Test 1, 1991.

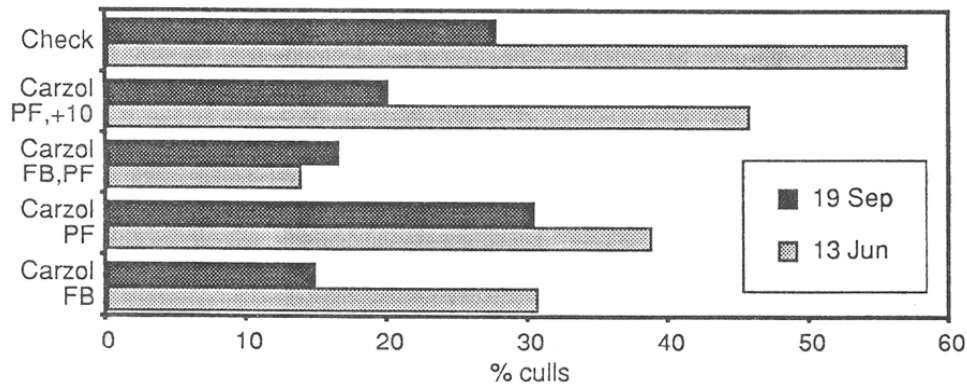


Figure 2. Pre-thinning and preharvest fruit damage by Campyloomma, Test 2, 1991.

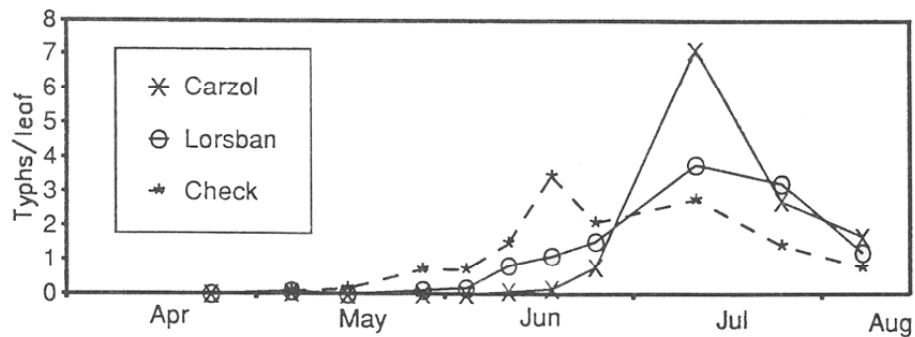


Figure 3. Populations of *Typhlodromus* following applications of materials directed at *Campyloomma*, 1991