

Pome Fruits—Biology

Pear Psylla on Pears

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Keywords: pear psylla, fenoxycarb, pear

Due to resistance and environmental concerns, future control methods for managing pear psylla, *Cacopsylla pyricola*, will attempt to minimize use of insecticides. One promising avenue of research currently being pursued at laboratories in Yakima (J. Krysan) and Wenatchee (E. Burts), Washington, is the use of juvenile hormone analogs such as fenoxycarb to disrupt diapause of the overwintering population of pear psylla.

Topical applications of fenoxycarb to the fall generation of pear psylla cause a termination of diapause, resulting in an onset of reproductive activities at an inappropriate time of the year. The effects of fenoxycarb on other activities, notably dispersal, are less well understood. Fall dispersal by pear psylla is an important but incompletely understood phenomenon, and it was of interest to determine the effects of fenoxycarb on flight activities of the fall generation. I have developed a tethering technique that allowed me to compare flight tendencies in pear psylla exposed to the following conditions: 1) short-day, field foliage; 2) short-day, field foliage, topical application of fenoxycarb; 3) short-day, greenhouse foliage; 4) long-day, greenhouse foliage. All conditioning was for 7 d at 20°C; short-day conditions maintain diapause whereas long days prompt ovarian development. Greenhouse foliage was included as a contrast to (dormant) field collected pear.

Each psylla (N >40 per treatment) was flown 5 times under laboratory conditions. I monitored 3 responses: duration of the longest flight (of 5 flights); average flight duration; percentage of flights that were "non-trivial" (>3 minutes in duration).

Results of the experiment indicated that the longest flights occurred for psylla retained under optimum diapause conditions (short-day, field foliage; see attached figures). Fenoxycarb caused a significant ($P < 0.05$) reduction in flight duration and a significant increase in percentage of flights that were "trivial" (<3 min) compared to the short-day, field foliage treatment.

