

Pome Fruits—Chemical Control

Induction of Sterility by Insect Growth Regulators

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While exploring the effects of the insect growth regulators (IGRs) fenoxycarb and pyriproxifen, it was found that these compounds had a sterilizing effect on females that were in nearly continuous contact with treated foliage. Preliminary studies indicated that pyriproxifen was a more potent sterlant than fenoxycarb (as measured by percent egg hatch) on post-diapause females psylla (both 2-hr and 24-hr exposure duration). A significant effect was produced by pyriproxifen (Ppfen) after the 2-hour exposure, but lasted for a shorter period than 24-hour exposure (4 days vs 8 days). These studies were extended, focusing on pyriproxifen, to determine the possibility of attracting psylla to point sources of this compound. Simple tests were conducted to determine if relatively short duration exposures to treated filter paper could produce prolonged sterility. The results of these experiments showed that a 2-hour exposure to treated (technical grade Ppfen dissolved in canola oil and thinned with acetone) filter paper resulted in immediate and sustained sterility.

An experimental formulation of Ppfen has become available. This new product is a yellow polypropylene 'tape' or strip in which the compound has been incorporated. Post-diapause winterform psylla females were held in vials lined either with treated tape or with vials lined with untreated tape. Both 1/2-hour and 2-hour exposures caused significant sterility compared to controls (Fig. 1).

Future efforts will determine the minimum duration of exposure sufficient to cause sterility. A short duration exposure (i.e., contact with the tape followed immediately by departure) is likely to be most consistent with psylla behavior in the field. Laboratory experiments will be conducted to determine whether these short-duration contacts with treated tape cause sterility.

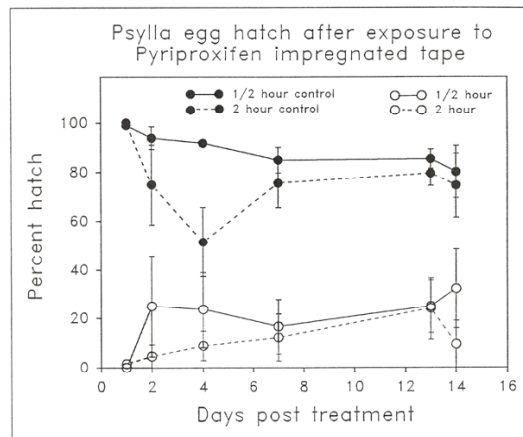


Figure 1