

## II. Pome Fruits

### a. Biology

#### 1. Lesser appleworm - Apples

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The Japanese government has requested information on the lesser appleworm, Grapholita prunivora (Walsh) (Lepidoptera: Tortricidae), as a quarantine pest of apples from the western United States. The lesser appleworm has been reported as an occasional pest of apples in the eastern United States but has rarely been encountered as a pest in the western region.

In 1990, we, in cooperation with the Washington Department of Agriculture, conducted a limited survey for the lesser appleworm in selected areas of Washington and Idaho. Adults were trapped in 1990 only in the Bellingham and Snohomish areas of northwestern Washington and only in small numbers.

In 1991 and 1992, our survey was shifted to the Walla Walla, Washington/Milton-Freewater, Oregon area where the lesser appleworm had been studied as a pest of prunes and other fruits in 1948-52 but had not been considered a pest since. Pherocon 1C traps baited with lesser appleworm pheromone, (Z)- and (E)-8-dodecenyl acetate, were placed in thickets composed mostly of wild apple, hawthorn, and rose, each a previously reported host of the lesser appleworm. In 1992, traps were also placed in two commercial prune orchards and one wild prune thicket.

Relatively large numbers of lesser appleworm adults were found in the area. In 1991, adult males were active from the first week in May through late October. Two activity periods were observed with peak catches occurring the first week of July and the third week of August. In 1992, males were active from the second week of April again through late October (Fig. 1). Three activity periods were observed with peak activity occurring during the third week of May, the first week of July, and the first week of September. It was earlier reported from the 1948-52 studies that there were two, and sometimes a partial third, generations in the area.

While we caught large numbers of lesser appleworm adults in these wild thickets, we found no concentration of larvae in any of the fruits. In 1992, enough lesser appleworm adults were reared from apple and hawthorn fruits to establish a laboratory colony. To date, four generations have been reared in the laboratory.

It has been suggested that establishment of "lesser appleworm-free" orchards could be used to meet Japan's import quarantine requirements. In 1991, the Washington Department of Agriculture, in cooperation with the Washington apple industry, initiated a survey for the lesser appleworm in those apple orchards where the grower wished to have the fruit considered for marketing in Japan.

Most of the orchards surveyed were free of the lesser appleworm but the insect was detected in a small number of orchards scattered throughout the major fruit-growing districts of the state. If the lesser appleworm-free orchard approach is used to meet Japan's import quarantine requirements, each orchard would have to be monitored every season and those orchards in which lesser appleworm is detected would not be considered for the Japanese market that crop year.

