

Pome Fruits—Chemical Control

Lesser Appleworm

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The lesser appleworm, *Grapholita prunivora* (Walsh) (Lepidoptera: Tortricidae), is of quarantine concern to MAFF-Japan on United States apples. Two possible approaches to meeting Japan's import quarantine requirements have been suggested: 1) establishing lesser appleworm-free orchards or 2) showing that the treatment proposed for codling moth on apples for Japan is also effective against the lesser appleworm. The Washington Department of Agriculture and the Washington apple industry have worked together on the lesser appleworm-free approach. In 1992, we worked on showing that the treatment for codling moth was also effective against the lesser appleworm.

The treatment proposed to meet Japan's import quarantine requirements for apples consists of two components: Cold treatment at 2.2°C or below for 55 days or more against eggs and subsequent fumigation with methyl bromide at 56 g/m<sup>3</sup> for 2 hours at 10°C. We tested the methyl bromide component against lesser appleworm.

The incidence of the lesser appleworm in host fruits is very low and many fruits had to be collected to obtain enough insects for fumigation. In the Pacific Northwest, hawthorn appears to be the principal host. In 1992, we made a number of collections of hawthorn fruits throughout the summer and conducted 40 fumigations with the methyl bromide component of the codling moth treatment. When fumigated with methyl bromide at 56 g/m<sup>3</sup> for 2 hours at 10°C, no lesser appleworm emerged from 153,160 hawthorn fruits infested with an estimated 340 immature lesser appleworm (Table 1).

The results of these tests show that the methyl bromide component of the proposed two-component treatment for codling moth on apples, by itself, without the cold storage component, is effective against the lesser appleworm. Therefore, the two-component treatment as proposed for the codling moth will also meet quarantine requirements for the lesser appleworm.

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Table 1. Efficacy of fumigation with methyl bromide at 56 g/m<sup>3</sup> for 2 hours at 10°C against lesser appleworm (LAW), 1992.

Fumigation date	Host fruit	No. fruits		No. LAW emerged		No. LAW treated <sup>1</sup>	Mortality (%)
		fumigated	control	fumigated	control		
16 June	hawthorn <sup>2</sup>	50,820	5,082	0	1	10	100
31 July	hawthorn <sup>2</sup>	29,570	2,957	0	3	30	100
14 Aug	hawthorn <sup>2</sup>	43,200	4,320	0	21	210	100
4 Sep	hawthorn <sup>2</sup>	<u>39,570</u>	<u>2,957</u>	<u>0</u>	<u>9</u>	<u>90</u>	<u>100</u>
		153,160	15,316	0	34	340	100

<sup>1</sup>Based upon number of adults emerging from untreated control.

<sup>2</sup>Rosaceae: *Crataegus* spp.