

Section III.
Biological & Cultural Control

PARASITOIDS OF HOP APHIDS ON *PRUNUS* IN THE SPRING

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We collected 83 samples of aphids from *Prunus* trees in the hop-growing areas of Washington from 22 April to 16 June 1999 to determine the relative abundance of parasitoids attacking the hop aphid, *Phorodon humuli* (Schrank). Seventy eight of the samples were from red-leafed ornamental trees and five were from green-leafed species. Hop aphid alone was found in 36 samples, the leaf-curling plum aphid, *Brachycaudus helichrysi* (Kaltenbach), alone was found in one sample, and 46 samples had both species. The leaf-curling plum aphid, *Hyalopterus pruni* (Geoffroy), was found in two of the mixed species samples. Hop aphids were more abundant than leaf-curling plum aphids in all but 5 of the mixed colonies.

Lysiphlebus testaceipes (Cresson) (Aphidiidae) was the most abundant primary parasitoid (Table 1). Fifty eight samples (69.9%) had primary parasitoids and 61 (73.5%) had secondary parasitoids. Parasitoid relative abundance was similar in samples with *P. humuli* alone and in the mixed species samples. For example, *L. testaceipes* comprised 85.6% of the primary parasitoids in the samples with *P. humuli* alone and 78.1% in the mixed species samples. *L. testaceipes* is a native parasitoid with a very wide host range. Wasps in the genus *Alloxysta* (Charipidae) were the most abundant secondary parasitoids followed by *Asaphes* and *Pachyneuron* (Pteromalidae) and *Dendrocerus* (Megaspilidae) (Table 2). The large number of secondary parasitoids probably reduced the abundance of *L. testaceipes*, especially after the middle of May. Parasitic Hymenoptera are rare in hop yards during the summer but are common in the spring on the hop aphid's winter hosts where they may have potential as biocontrol agents.

Table 1. Primary parasitoids reared from 83 aphid samples collected from *Prunus* in the hop growing areas of Washington during the spring.

	<i>Lysiphlebus testaceipes</i>	<i>Praon</i> spp.	<i>Aphelinus</i> spp.	<i>Aphidius</i> spp.	<i>Diaretiella rapae</i>
Number of parasitoids	654	128	7	6	2
Percent of parasitoids	82.1	16.1	0.88	0.75	0.25
No. samples with parasitoids	53	34	4	3	2
Percent samples with parasitoids	63.9	41.0	4.8	3.6	2.4

Table 2. Secondary parasitoids reared from 83 aphid samples collected from *Prunus* in the hop growing areas of Washington during the spring.

	<i>Alloxysta</i> spp.	<i>Asaphes</i> and <i>Pachyneuron</i>	<i>Dendrocercus</i> spp.
Number of parasitoids	845	514	89
Percent of parasitoids	58.4	35.5	6.1
No. samples with parasitoids	51	42	12
Percent samples with parasitoids	61.4	50.6	14.5