Five species of husk fly parasites were reared this year and banked for culture and release in the field during 1977. Also, it was determined that walnut aphid and dusky veined aphid honeydews are excellent adult husk fly foods for egg production and longevity. Two successive generations of husk fly were cultured on an artificial diet.

Husk Fly Parasites

The following five species of parasites were exposed to husk fly puparia and larvae. The exposed host material was then banked for lab culture and for field release during 1977.

<table>
<thead>
<tr>
<th>Sutter/Yuba Counties</th>
<th>AM*</th>
<th>AM1**</th>
<th>Lye***</th>
<th>Pint****</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orch 1</td>
<td>80</td>
<td>48</td>
<td>252</td>
<td>149</td>
</tr>
<tr>
<td>Orch 2</td>
<td>34</td>
<td>48</td>
<td>192</td>
<td>30</td>
</tr>
<tr>
<td>Orch 3</td>
<td>10</td>
<td>40</td>
<td>253</td>
<td>12</td>
</tr>
<tr>
<td>Orch 4</td>
<td>29</td>
<td>19</td>
<td>163</td>
<td>57</td>
</tr>
<tr>
<td>Orch 5</td>
<td>31</td>
<td>34</td>
<td>149</td>
<td>10</td>
</tr>
<tr>
<td>Orch 6</td>
<td>8</td>
<td>6</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Sub-total</td>
<td>192</td>
<td>195</td>
<td>1032</td>
<td>263</td>
</tr>
<tr>
<td>Total</td>
<td>402</td>
<td>461</td>
<td>1375</td>
<td>425</td>
</tr>
</tbody>
</table>

* Zoecon Pherocon® AM trap - Original trap left entire season
** Zoeecon Pherocon® AM trap - Replaced every three weeks
*** Glycine/Lye Bait Pan
**** One pint ice cream carton

Biological Control Research on the Walnut Husk Fly (1976)

K. S. Hagen and R. L. Tassen

Psilus sp. from New Mexico
Psilus n. sp. from Napa Co.

Pseudoecolla sp. New Mexico
Opinus n. sp. Texas
Opinus juglandis New Mexico
Honeydews as a Husk Fly Adult Diet

The preoviposition period was 15 days fed either walnut aphid or dusky veined aphid honeydew, deposited eggs and lived as long as four months. Thus, the honeydew excreted by the aphids that infest walnuts provides effective food for adult husk flies.

Artificial Husk Fly Larval Diets

An artificial diet for culturing husk fly larvae has been developed. Presently we obtain about 50% recovery of puparia from the number of eggs placed on the diet. We are now attempting to select for a non-diapausing strain of husk fly in order to have continuous production of husk fly larvae for parasite production.

Dusky Veined Walnut Aphid

Biological Control of the Dusky Veined Walnut Aphid

Robert van den Bosch

Dusky Veined Walnut Aphid (*Callaphis juglandis*)

The erratic seasonal and geographical occurrences of the dusky veined walnut aphid have hindered the field colonization of the parasitic wasp, *Praon* sp. However, we found an aphid population near Los Banos, Merced County, which persisted in goodly numbers throughout the summer. Parasites were colonized on this population and in the autumn mummified aphids were recorded from laboratory reared aphid samples and were also observed on the trees. Overwintering survival of the parasite is being assessed and intensive parasite colonizations will be continued at Los Banos and other favorable sites in 1977.

Walnut Aphid (*Chromaphis juglandicola*)

The walnut aphid in a commercial orchard at Hanford, Kings County, was the lowest in five years of assessment. Despite the aphid scarcity, the parasite, *Trioxys pallidus*, was quite active.

Meanwhile, time specific life table studies of *C. juglandicola* were initiated to determine the factors influencing age structure of the aphid's population. Ultimately, these data will provide clear insight into factors causing aphid mortality. A similar study of the dusky veined aphid will be undertaken in the future.