Border Spraying and Trapping Techniques for Stink Bugs

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Stink Bug Feeding Injury
Box Elder Bug Feeding Injury
Examples of Fruit Injury Caused by Stink Bug Feeding in Late Summer
1998-Chemical trials

- Treatments: Insecticides registered for rangeland use.
- Test area: Native habitat of bitterbrush and mullein divided into plots of approx. 25 ft x 25 ft.
- Design: Test replicated twice. One rep treated dilute, the other concentrate (4X).
- Pretreatment: Plots verified to have at least 10 mullein plants and 10 stink bugs. Approximately 75% of mullein plants had stink bug.
- Evaluation: Stink bug survival and recolonization was evaluated at 3 and 10 days after treatment. The treatment area was inspected for 4 minutes and the total number of *E. conspersus* and *C. ligata* were recorded.
1998-Chemical trials

Orchard border

Native habitat

mullein

Plot 1

Plot 2

Plot 3

Plot 4

Plot 5

mullein
1998-Chemical trials

3 DAT evaluation

- Untreated
- Sevin XLR
- Diazinon
- Orthene-1#
- Malathion
- Penncap-M
- Orthene-2#
- Pounce

Avg no SB/4 min search
1998-Lure tests

Traps: Tube trap (Dick Rice, UC Davis) Jug Trap

Lures: Species specific lures (Dr. Millar, UC, Riverside)
1. Consperse
2. Chlorochroa
3. Red-shouldered stink bug

Design: Traps placed on border, lures changed weekly.
1998-Lure tests

E. conspersus specific lures

Cumulative SB/trap/42 days

- Tube trap
- Jug trap

Not tested in this trial
Cumulative SB catch

SB/3 traps

August

September

Immigration constant through harvest
Species diversity of trap catch

Species complex appears to change with time.
1998-Injury samples

- Sampled in approximately in 100 ft grids
- Tracked injury by locale
- Injury generally highest on border

Factors affecting total fruit injury
- Orchard size
- Surrounding habitat
- Stink bug population size
### 1998-Injury samples

<table>
<thead>
<tr>
<th>Location</th>
<th>Variety</th>
<th>Avg % inj.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manson</td>
<td>Golden</td>
<td>4.5</td>
</tr>
<tr>
<td>Manson</td>
<td>Jonagold</td>
<td>3.7</td>
</tr>
<tr>
<td>Manson</td>
<td>Delicious</td>
<td>5.9</td>
</tr>
<tr>
<td>Stayman flats</td>
<td>Fuji</td>
<td>6.0</td>
</tr>
<tr>
<td>Navarre coulee</td>
<td>Delicious</td>
<td>2.7</td>
</tr>
<tr>
<td>Chelan</td>
<td>Delicious</td>
<td>2.3</td>
</tr>
<tr>
<td>Orondo</td>
<td>Delicious</td>
<td>6.2</td>
</tr>
<tr>
<td>Orondo</td>
<td>Delicious</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Average injury at 15 orchards = 5.2%
1998-Injury samples

Large orchard showing border injury in the outermost rows.
1998-Injury samples

Smaller, narrower orchard surrounded by stink bug habitat showing injury throughout
Review

Species specific lures show attraction

Release and trapping system were inadequate

Several insecticides used on rangeland suppressed SB density

Will this reduce in-orchard populations?

Orchard surveys show average fruit injury over 5%

Border effect noted in most situations

Some orchards show injury throughout