

#### 4. Chemical Control/New Products

### THRIPS SPECIES AFFECTING TREE FRUITS, AND THE EFFECT OF SPINOSAD ON THRIPS

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Thrips were a significant problem in a number of orchards in the Wenatchee area in 1998, in blocks not normally prone to this pest problem. We collected specimens with a beating tray from several orchards where fieldmen reported problems, and had them identified by the Systematic Entomology Laboratory (S. Nakahara). Many of the specimens were larvae, and could not be identified to species; these were placed in the genus *Frankliniella*. Several adult specimens were submitted from a block in Blewett pass, and were identified to species:

<i>Mycterothrips albus</i> Moulton	2
<i>Neohydatothrips</i> sp.	1
<i>Thrips tabaci</i> Lindeman	1

In addition, we sampled 2 cherry orchards in the Wenatchee Heights area:

Goodman	<i>Frankliniella occidentalis</i> Pergande	8
Wiggs	<i>Frankliniella occidentalis</i> Pergande	8

In addition, we took specimens from a 'Granny Smith/M27' block in the WSU-TFREC Smith Tract orchard (10-east) which is traditionally prone to thrips damage. The surrounding habitat is sagebrush, grass, and weeds on 2 sides (apple and cherry on the remaining two sides). While these specimens have not yet been identified, we noted dark and light colored thrips in our samples.

An insecticide efficacy test was performed in the latter block. Trees were planted 1.25 x 4.5 m on a single wire trellis ca. 2.5 m high, with interplanted crab pollenizers. Plots were three rows wide by ca. 14 trees long. The experimental design was a randomized complete block, with blocks based on geography. The center trees of the center row of the plot were sampled for thrips and fruit damage. Treatments were applied on 30 April 1998 with a Rears Pak-Blast sprayer calibrated to deliver 100 gpa. The timing of the application was targeted at full bloom, however, some petal fall was occurring at the time of the spray. Trees were sprayed in the evening to avoid contact with bees.

Despite the numerical difference between the 3 treatments and the untreated check on 5 May (5 days after treatment), no statistical differences were found among treatment means (Table 9814.1, Figure 9814.1). This is probably due to the considerable underlying spatial variability in thrips populations in the block. Populations in all

treatments were low by 14 May, since blossoms were no longer on the tree to attract them.

Although all the thrips encountered were counted, there appeared to be either 2 different color morphs or 2 species present in the block, one dark grey-brown, one light colored (yellowish white). The western flower thrips, *Frankliniella occidentalis*, is a light color, so the dark individuals are presumably some other species. This information presents some avenues for further research on species composition of thrips infesting orchards.

Fruit injury was classed into two types of possible thrips injury: pansy spot, which is the traditional type of injury associated with this species, and dimpling, which is normally associated with stinging heteroptera (e.g., *Campylomma verbasci*). Reports from fieldmen earlier in the year brought to my attention the possibility that the dimpling damage was caused by thrips. This may be related to the possible second species found in this block, or alternatively may be damage that was always caused by thrips, and mistakenly attributed to lygus or *C. verbasci*. Since *C. verbasci* were also present in this block, it is not possible to eliminate either possibility.

Total fruit injury ranged from ca. 3-8%), with the higher levels found during the preharvest evaluation. At this time, the check had the numerically highest level of damage, although no statistical differences were found among the treatments. There were substantial levels of damage in all treatments, which was comprised mostly of pansy spot. The increase in the percentage pansy spot between the 19 May and the 14 September evaluation may indicate that this condition become more apparent as the fruit mature. If indeed the dimpling damage was caused by *C. verbasci*, then Carzol should have been more effective in suppressing damage (this is currently the standard treatment for this pest). However, the later timing (past full bloom) may have been prejudicial to the efficacy against both pests.

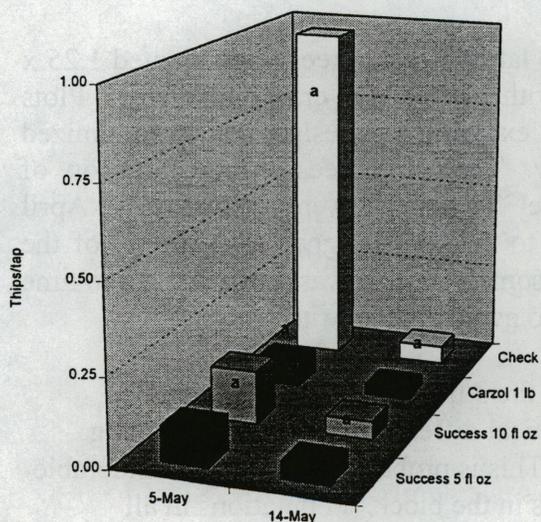


Fig. 1. Thrips populations posttreatment, ST-10, 1998

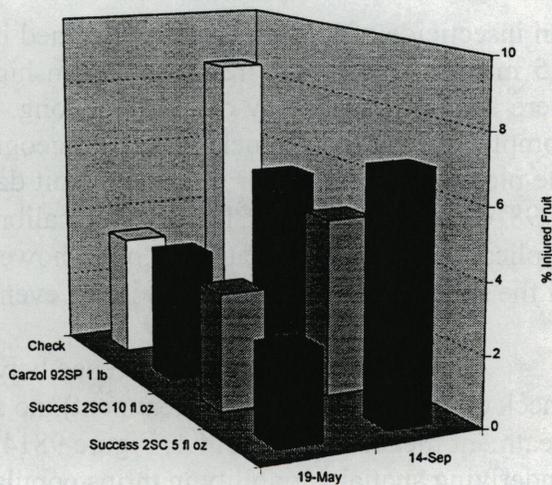


Fig. 2. Fruit damage by thrips post-bloom and preharvest, ST-10, 1998.