Section IV:  Biological & Cultural Control

Prey choice and spatial distribution of *Neoseiulus fallacis* (Garman)
Bounfour M.A.; L. K  Tanigoshi, A. L. Antonelli
Department of Entomology
Washington State University
REU- Vancouver, WA  98665
red (360) 576-6030
malika@wsunix.wsu.edu

The dispersion of the yellow spider mite (YSM), *Eoteranychus carpini borealis* (Ewing), the twospotted spider mite, (TSSM), *Tetanychus urticae* Koch spider mites and *N. fallacis* was investigated, with 1997 field data, using the variance ($S^2$) to the mean (M) ratio ($S^2$/M) and Taylor's power law (Log $S^2$ = log a + b Log M).

Prey preference of *N. fallacis* to feed on either TSSM or YSM was assessed by a choice test, using leaf discs. Yule's coefficient of association was used to investigate the spatial association between the predator and the two prey species .

For the three mite species, the variance to the mean ratios were significantly higher than 1 (Table 1), indicating an aggregated distribution. ($I_D$ ↖ [$X^2_{0.95}$, $X^2_{0.05}$]).  The fit of Taylor's power-law regression lines (measured by the $R^2$ values) was also very good for all the species, indicating that the data do not follow a Poisson distribution (Table 1).  Thus the distribution of the three species is aggregated.

Table 1.  Dispersion statistics of *N. fallacis* and spider mites on red raspberry

| Species | Taylor's power law parameters | | | $s^2$/m |
| --- | --- | --- | --- | --- |
| | log (a) ± SE | b ± SE | $R^2$ | |
| *E.  carpini borealis* | 0.617± 0.044 | 1.568± 0.039 | 0.98 | 23.203 |
| *T. urticae* | 0.732 ±0.042 | 1.56± 0.042 | 0.98 | 16.471 |
| *N. fallacis* | 0.543± 0.061 | 1.363 ±0.068 | 0.94 | 3.3871 |

During the season, and on a spatial scale, the predator was positively associated with both prey species ($P < 0.05$).  Prey choice studies showed that the outcome of foraging behavior of *N. fallacis* when offered TSSM and YSM is the same.