

Section IV: Biological & Cultural Control

Spider mites on red raspberry: Predatory role of *Neoseiulus fallacis* (Garman).
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During 1997, commercial red raspberry fields were selected according to spider mite species composition during the previous year. Spider mite population dynamic studies were conducted by weekly sampling leaflets from each of these fields. The leaflets were placed in plastic bags and brought to the laboratory where they were brushed with a mite brushing machine, onto a detergent coated glass plate. All life stages of spider mites and their predators were counted and recorded. Comparative studies were conducted on development, oviposition and feeding of *N. fallacis* when offered the yellow spider mite (YSM) and/or two spotted spider mite (TSSM). These studies were carried on whole raspberry leaves with field populations at room temperatures ($21 \pm 2.35^\circ\text{C}$).

Results of 1997 confirmed population dynamic studies conducted in 1995 and 1996 field seasons. The YSM dispersed earlier in the season (April-May) to the upper part of the canes than did the TSSM (July-August). Late in the season, (September-October) YSM continued to develop and reproduce while TSSM was entering diapause. *N. fallacis* densities were correlated with the most common spider mites' species ($P < 0.001$). From August to October, *N. fallacis* exhibited a numerical response to spider mite densities. Because of this late response, natural populations of the predator did not play a major role in regulating the pest populations under economic levels. The earlier and later occurrence of the YSM in the field is beneficial because it sustained populations of *N. fallacis*.

N. fallacis development and oviposition were comparable when feeding on either prey species. Similarly, the number of prey eaten per female per day was the same when the predator was offered both preys. However, Manley's measure of preference (β) was higher for YSM (0.657) than for TSSM (0.343). The instantaneous rate of increase (r_i) of *N. fallacis* was higher when feeding on both species than when feeding on each one alone. This parameter was also higher for YSM than for TSSM.