

Pome Fruits—Biological Control

Interspecific Predation and Cannibalism in *Metaseiulus occidentalis* and *Typhlodromus pyri*

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Although both *Metaseiulus occidentalis* and *Typhlodromus pyri* are used individually in biocontrol programs for apple pest mites in Oregon, there has been little published on the potential of using these two predators together. A research program to evaluate this potential is underway at Oregon State University which involves the establishment of a variety of prey combinations exposed to both predators individually and together. This plots were established in early 1990 and have been maintained through the growing season of 1990-1991.

Results from the 1990 field season indicated that control of apple pest mites in plots with both predators present was as good or better than that seen in plots with either of the phytoseiids alone. In 1991, plots with both predators started the year with very low levels of pest mites. *Metaseiulus occidentalis* populations in plots where *T. pyri* was present never developed to 1990 levels and eventually were displaced from the system. As this occurred only in the plots where both predators were present, a competitive interaction was suspected to be the excluding factor.

Rates of predation of females of *M. occidentalis* and *T. pyri* on immatures of their own species and those of the other phytoseiid were assessed and compared at 3 temperature regimes representative of early and mid-summer temperatures in the Willamette Valley.

The rates of predation of *T. pyri* females on immatures of *M. occidentalis* and its own were always higher than the rates of predation of *M. occidentalis* females on immatures of its own or the other phytoseiid. At lower temperatures, *T. pyri* was still preying on both its own immatures and those of *M. occidentalis* while *M. occidentalis* evidenced little if any predatory behavior at these lower temperatures.

The feeding of *T. pyri* on *M. occidentalis* immatures may, therefore, be the principal factor suppressing *M. occidentalis* populations in our mixed plots in 1991.