



## BIOLOGICAL CONTROL OF TWO-SPOTTED SPIDER MITES BY PREDATORS WITH ALTERNATIVE PREY EXPLOITATION STRATEGIES

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The predatory mite *Phytoseiulus persimilis* is a biological control agent commonly used to suppress spider mite (*Tetranychus urticae*) infestation in crops and ornamentals. This predator depletes local populations of its prey fast, and subsequently goes extinct due to lack of food, or disperses. Thus, growers need to release predators whenever a new spider mite outbreak occurs. Using predator strains with traits that allows them to persist longer in the crop may lead to more effective biological control. In these interactions, differences in timing of predator dispersal can result to alternative prey exploitation strategies. Early dispersal of adult females, before the local prey population is exterminated, decreases the predation rate and, as a consequence, the offspring of the dispersed predator will have more food available, resulting in a longer interaction period between the predators and their prey in the local patch. Late adult female predator dispersal drives the local prey population to extinction faster, resulting in a shorter interaction period between the predator and its prey. In a greenhouse experiment, we used two lines of *P. persimilis* that had been selected for early and late aerial dispersal relative to prey extermination, as well as a commercial line produced by Koppert Biological Systems. The experimental design consisted of one donor plant, where prey and predators were released and eight recipient plants, where only prey were present. The recipient plants were connected via bridges with the donor. Our results show that all predator lines had a similar interaction period with their prey on the donor plant and did not differ significantly in the production of numbers of dispersers on the recipient plants. We conclude that lines that were selected for different timing of aerial dispersal can control prey populations equally well when they have the option to disperse ambulatorily.

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