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BIOLOGICAL CONTROL OF MITES ON AVOCADO

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Studies on the biology of Persea mite (Oligonychus perseae) revealed that the webbing consists of densely packed, parallel strands of "silk", forming a sheet which some predators, such as Euseius hibisci. cannot penetrate. However, these nests usually have 2 small, semicurcular openings through which Persea mites enter or leave. All active immature stages as well as adult Persea mites spin strands of webbing, and it usually the first activity when a mite leaves a nest and settles on another part of a leaf or on another leaf. As many as 16 nests can be produced by one female Persea mite. Studies on rate of development and reproduction of Persea mite at 4 different tempratures have just been completed, but the data have not yet been compiled and analyzed.

In order to learn more about biological control of Persea mite by native (Galendromus annectens) and introduced (G. helveolus) predaceous mites, 4 orchards were monitored at biweekly intervals. Three of these had release plots in which ca. 250 G. helveolus were released per tree, and the fourth had releases in the previous year but not 1993. In release plots, G. helveolus multiplied relatively rapidly and usually comprised the highest percentage of predaceous mite species by early summer, the remainder of the predator mite population during that time being mainly G annectens. Although the results varied from orchard to orchard, suppression of Persea mite populations was evident on the release trees, as compared to numbers on non-release control trees. One example is shown in figs.l, 2 and 3. G. helveolus also invaded the control plots after several weeks. This observation suggests that it is unnecessary to release predators on every tree (fig. 3). The native Galendromus annectens also appeared to be a significant mortality factor of Persea mite in some orchards. In one, it comprised a higher percentage of the predaceous mite population even on the helveolus release trees (fig. 4). In the orchard in which helveolus was released in 1992 but not in 1993, neither helveolus nor annectens occurred in the samples until relatively late in the 1993 season, when Persea mite populations were already high. Euseius hibisci. usually the most common predaceous mite on avocado, again did not increase in numbers in response to increases of Persea mite.

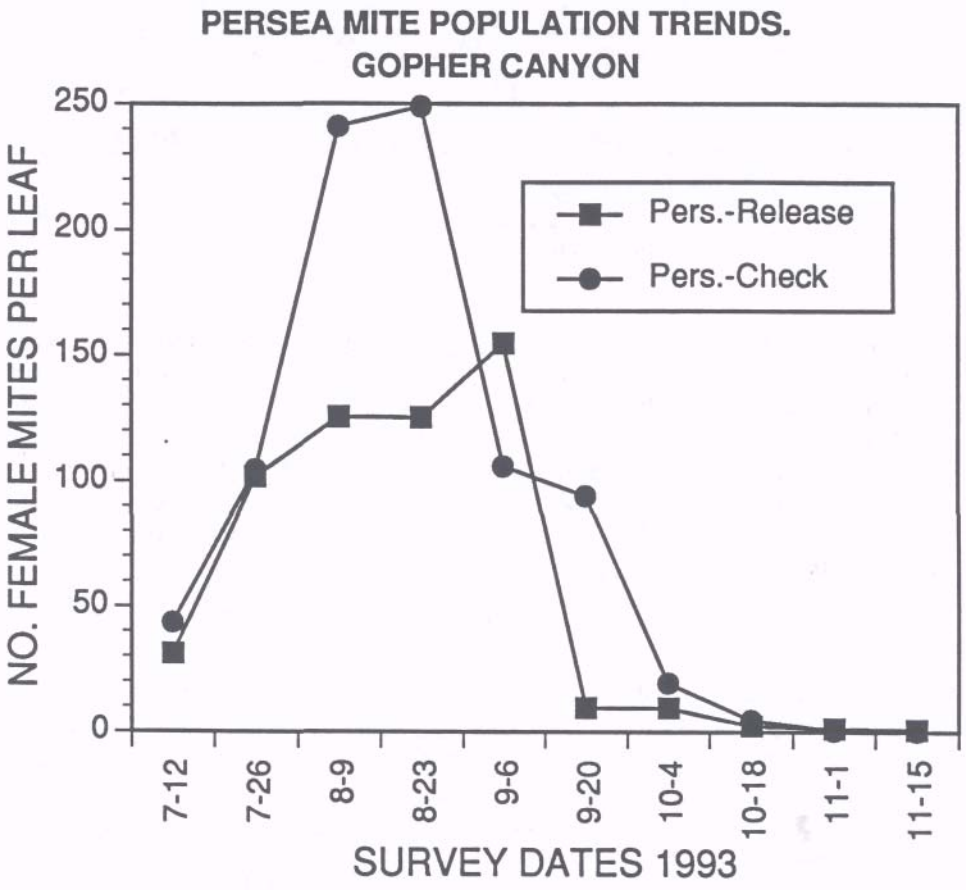

Fig. 1. Persea mite population trends on G. helveolus release trees and non-release control (check) trees. Gopher Canyon, San Diego County.

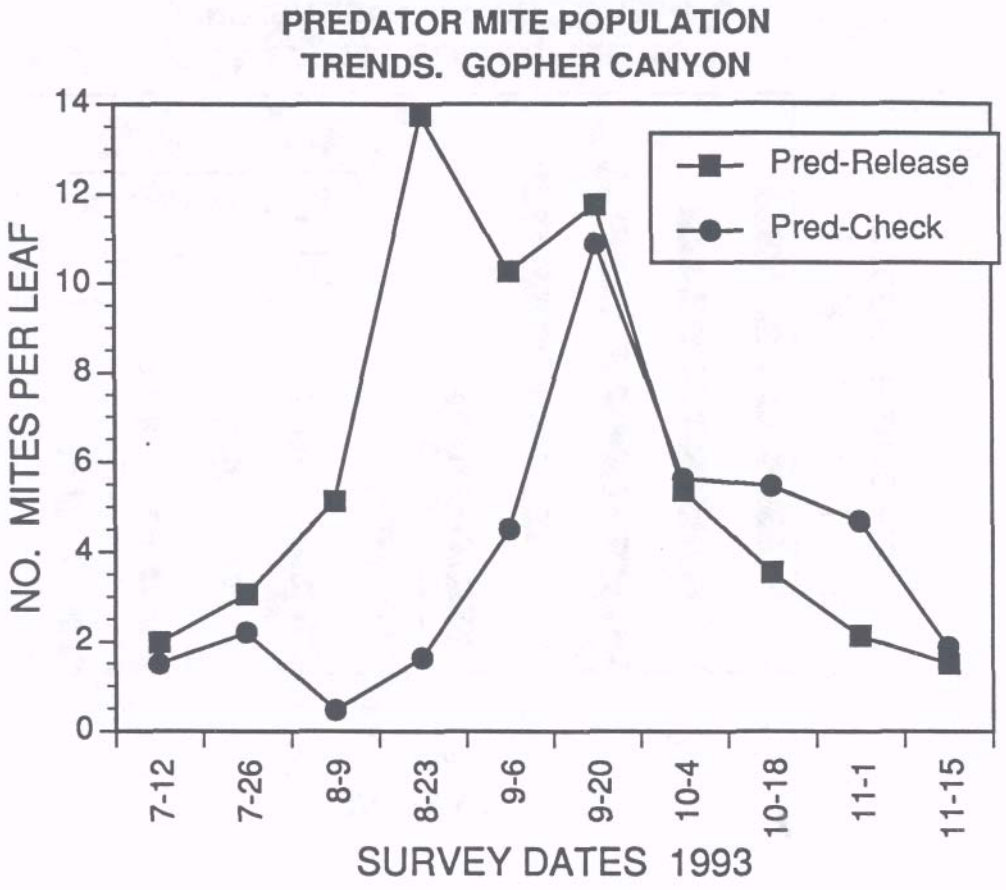

Fig. 2. Predator mite population trends on G. helveolus release trees and non-release control (check) trees. Gopher Canyon, San Diego County.

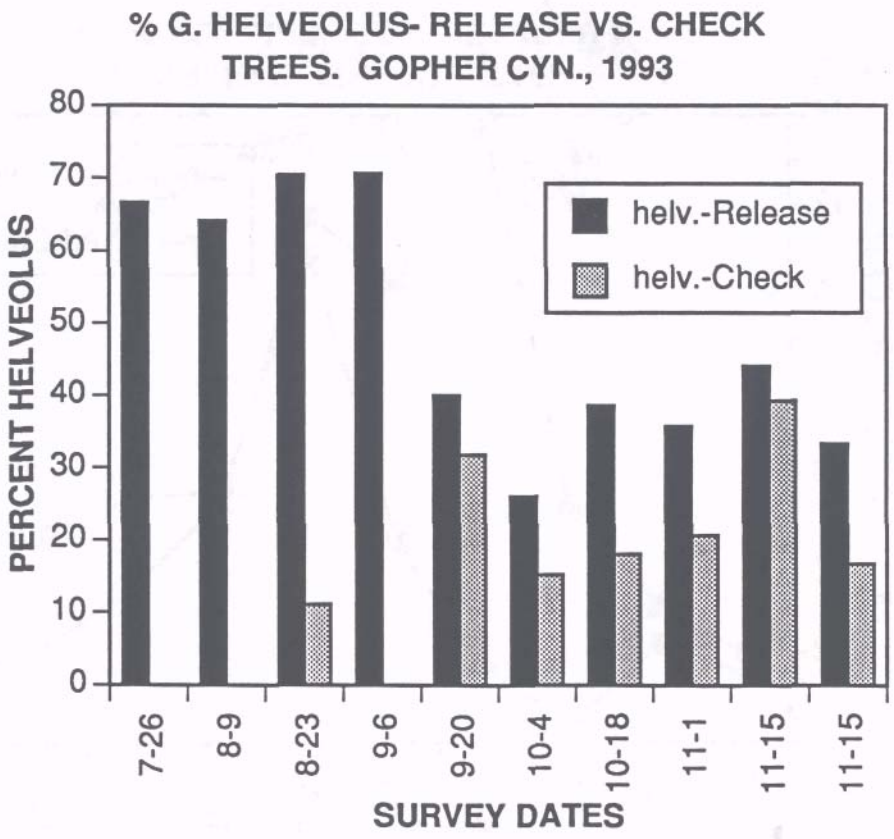

Fig. 3. Percentage of G. helveolus in the predator mite population on G. helveolus release trees and non-release control (check) trees. The remainder of the population was mainly G. annectens. Gopher Canyon, San Diego County.

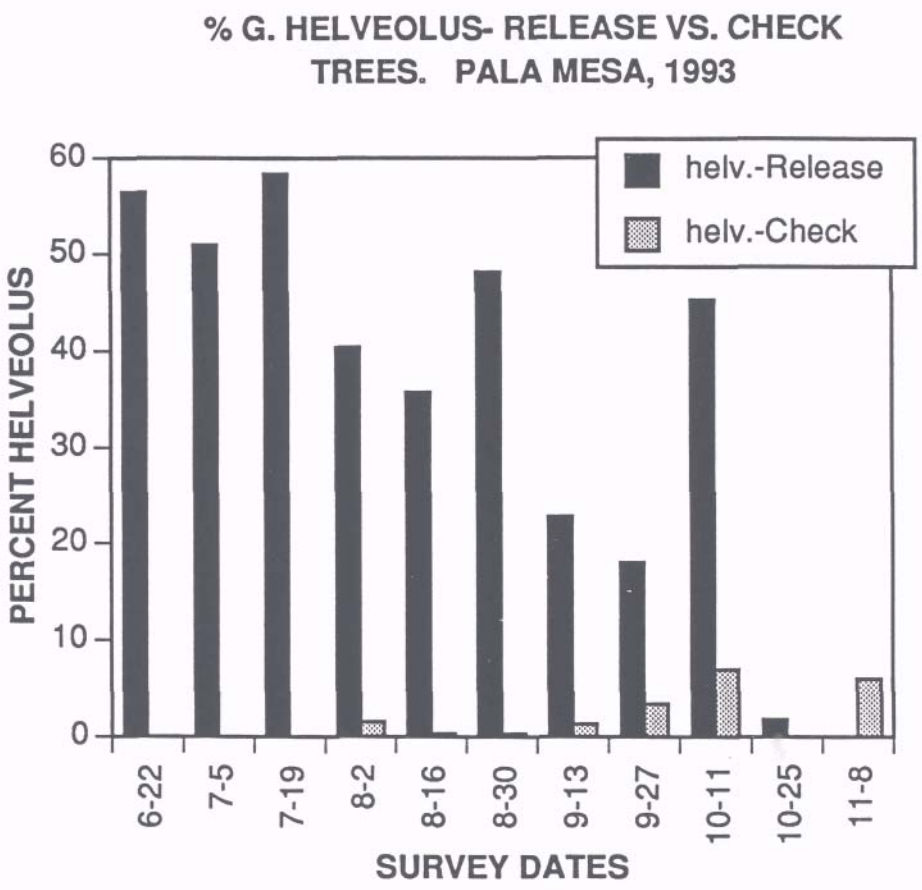

Fig. 4. Percentage of G. helveolus in the predator mite population on G. helveolus release trees and non-release control (check) trees. The remainder of the population was mainly G. annectens. Pala Mesa, San Diego County.