Seasonal Phenology of Leafminer

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The objectives of this study were to determine the host plants used by citrus leafminer (CLM) throughout the year in the Southern California (Escondido area), to determine seasonal phenology; to determine the periods of moth flight activity in Southern California (Escondido area), and to determine the species of parasites attacking CLM on various host plants throughout the year in the Southern California (Escondido area).

Sampling sites were distributed from San Diego to Riverside. Additionally, monthly monitoring was conducted using delta traps from Encinitas to Fresno, CA using pheromone lures developed by Jocelyn Millar (UC Riverside).

CLM was found in every citrus production area from the Southern San Joaquin Valley to San Diego. Infestations in Southern San Joaquin Valley were minor, which is expected the first year it becomes established. Delta traps were serviced on monthly or weekly intervals depending on the time of year and magnitude of flight. Trap catches for Northern San Diego County (Pauma and Fallbrook) and UC Riverside are summarized in Figures 1, 2 and 3.

In addition to pheromone lures, emergence traps were placed on the ground under known infested organically grown Eureka lemon and Valencia orange trees in Pauma, CA. The emergence traps were placed under trees on March 22, 2006. Tangle trap coated plastic sheets were removed and replaced on April 18, May 9, June 6 and June 20. There were no citrus leafminer adult moths on any of the emergence trap sheets for any of the collection dates. However, various other types of winged insects were trapped on the sheets. Delta traps that were placed within lemon and orange trees in the groves where emergence traps were placed.

From the data presented in Figures 1-3, it appears that timing of moth flights is correlated to location. In Riverside, CLM flights began before April 2006, whereas Fallbrook and Pauma
flights began in May 2006. In Pauma, delta traps did not capture CLM moths until May 9 in the lemons and June 6 in the Valencia oranges; these sites are approximately 0.25 miles apart. For next season, Delta traps will be monitored at shorter intervals to help to determine the exact timing of CLM flight so that correlations to degree days can be made.

Surveys for parasitoids are ongoing. Preliminary findings indicate that there are a number of parasitoids in the family Eulophidae that are attacking CLM larvae and pupae in Riverside and Ventura Counties. Thus far, L. Forster (UCR) has reared and J. Heraty (UCR) has identified: Closterocerus utahensis—9%, Pnigalio spp. ~27%, Chrysocharis spp. (tentative ID)~ 64%. Survey of 560 different citrus species or varieties was initiated at the Citrus Variety Collection at UCR on November 3, 2006 to evaluate the percentage of damage from CLM on each species or variety. The survey was completed on December 6, 2006. Data are currently being summarized, however damage ranged from less than 1% infestation to 90% infestation of new leaf flush depending on the citrus species.