

Beneficial Organisms for Biological Control of Citrus Pests in the Groves

Researcher: Jawwad Qureshi

Contact: jawwadq@ufl.edu

UF/IFAS SWFREC



Citrus in Florida is attacked by several pests including ACP, citrus leafminer, mites, thrips, scales, mealybugs, etc. Beneficial organisms indigenous or exotic including predators, parasitoids, and entomopathogens, target these pests. Several species of ladybeetles, lacewings, spiders, and others were observed colonizing the citrus trees causing 80-100% mortality of ACP immatures. Parasitoid *Tamarixia radiata* introduced from Asia is now mass-produced and millions released. *T. radiata* attack ACP immatures and parasitism rates of up to 40-50% were observed. *Hirsutella citriformis* is a naturally occurring

entomopathogenic fungus common in Florida. On average 23% of ACP adults and a maximum of 75% or more were killed by *H. citriformis*. The mortality resulting from predators, parasitoids or fungus even when lower than reported is significant considering the potential of a single female ACP or another pest to produce hundreds of progenies. These and additional species of beneficial organisms also attack other pests. The impact of these beneficial organisms varies depending upon crop phenology, the abundance of the pests, and the season. For example, predators and parasitoids are common when trees are

producing new growth and pests are reproducing with their progeny developing on young shoots. The incidence of fungal infections is at its peak when humidity is high and during those times mummified ACP cadavers are common. Targeting overwintering ACP adults with insecticide sprays is highly effective and less damaging to beneficial organisms rare at that time. Later use of selective insecticides further helps with the conservation of beneficial organisms.

Funding

