

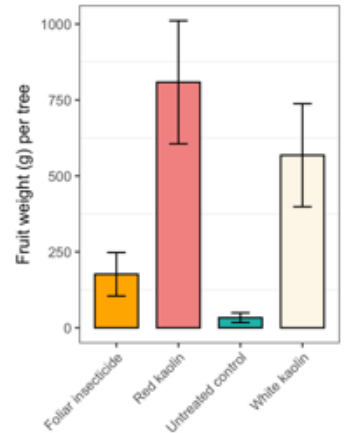
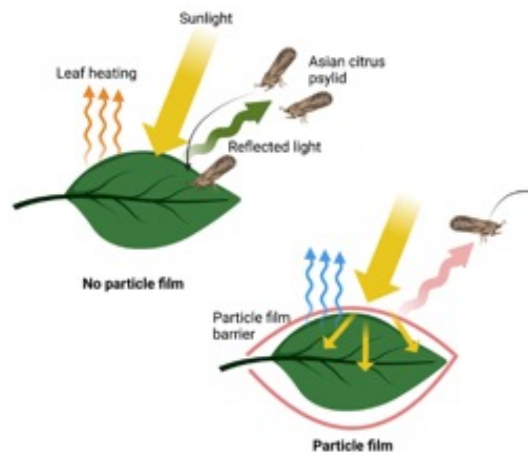
# Keeping Cool with Particle Films

**Researcher:** Christopher Vincent

**Contact:** [civince@ufl.edu](mailto:civince@ufl.edu)

UF/IFAS CREC

Particle films have long been used to repel insect pests and enhance tree growth. Particle films are simply suspensions of solid particles that form a film over the surface of the leaf after they are sprayed and dried. They repel insects by reflecting different colors of light that keep the insect from identifying its host. They improve plant growth by dispersing light more evenly allowing leaves to stay cool and stomata to stay open for photosynthesis. Our research confirms that particle films can reduce psyllid pressure, delay HLB infection, and enhance growth in young trees. A new approach of



*Yield in third year of kaolin study. Treatments began at planting.*

*Trees were 'Hamlin' trees on Swingle, HLB-free at planting, but all infected by Year 3.*

dying the natural white color red, improved psyllid control over the white and moderately improved citrus growth. The result was that by year three of a planting, particle film-treated trees produced 3x greater yields than trees treated with foliar insecticides at least once per month. In the same year, fruit from particle film treated trees had 1° Brix more than control trees.

With detailed studies we saw that particle films improve leaf water status even when trees have enough soil water and that they reduce heat stress by keeping leaves about 10°F cooler in the

summer. We are now performing experiments assessing whether particle films have the same effects on large-mature trees as they do on trees during the establishment period, as well as what is the optimum rate of both red and white particle films.

For now we can conclude that: 1) Particle films reduce Asian citrus psyllid pressure. 2) Particle films can delay HLB infection. 3) Particle films increase growth and yield, by reducing stress and improving tree water status. 4) Red-dyed films are either better than or equal to the natural white kaolin products.

## Funding

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