



Citrus Blackfly

Aleurocanthus woglumi Ashby
(Homoptera: Aleyrodidae)

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Citrus blackfly adult

Introduction. Specimens of the citrus blackfly, *Aleurocanthus woglumi* Ashby, were first found in a sample of pummelo (jabon) foliage collected in July 1996 by a resident of Aiea, Oahu, and submitted to the University of Hawaii (UH) at Manoa. Identification was made by Mr. Dick Tsuda of the UH Insect Diagnostic Clinic and confirmed by S. Nakahara of the U.S. Department of Agriculture (USDA) Systematic Entomology Laboratory (SEL). The citrus blackfly, which is an insect belonging to the whitefly family, is considered the most injurious insect infesting citrus trees. It can reduce a citrus tree to non-productivity more quickly than any other known citrus pest (USDA 1982). The citrus blackfly is a native of India and occurs in Asia, Africa, Jamaica, West Indies, Mexico, Central America, South America, and the U.S. mainland (Florida & Texas).

Description. Citrus blackfly adults are dark-gray to black and measure 1.33-1.66 mm in length (USDA 1982). Females are able to produce 100 eggs or more which are laid in spirals. The eggs are golden brown, which darken prior to hatching. The immature larval and pupal stages of the whitefly appear as tiny black scales attached to the undersides of leaves (Fig. 1). The immature stages do not move, but the adults can fly, preferring to congregate on new leaves to lay their eggs.

Distribution. Heavy infestations of the whitefly have been found in many residential areas of Oahu. Although relatively slow to disperse on its own, it has apparently spread through the movement of infested planting material. Infestations were later found on the Big Island and Maui in August 1996, on Kauai in March 2000, and on Molokai in April 2001.

Damage. The greatest injury is caused by the sucking of plant sap, which removes water and nutrients. Additional damage is caused by the excretion of tiny droplets of sticky honeydew from the whitefly upon which grows sooty mold fungus, usually on the upper surfaces of leaves. A heavy growth of sooty mold on leaves results in reduced respiration and photosynthesis. The combination of direct feeding of high numbers of whiteflies with large amounts of sooty mold growth being produced causes a decline in the general health of the tree and a reduction in fruiting.



Figure 1. Life stages of citrus blackfly.



Figure 2. Citrus leaves infested with citrus blackfly.

Hosts. Worldwide, the citrus blackfly has a wide host range. In Hawaii, heavy infestations of the whitefly have been observed on the foliage of various citrus trees such as pummelo, lemon, and orange. Where infestations on citrus are heavy, nearby trees and shrubs such as mango, pink tecoma, surinam cherry, and avocado also become infested. By themselves, non-citrus trees and shrubs are not normally affected by this whitefly.

Biological Control. In 1998, the Hawaii Department of Agriculture's (HDOA) Exploratory Entomologist found two species of parasitic wasps of the citrus blackfly in Guatemala and sent them to the HDOA Insect Quarantine Facility in Honolulu. They were identified as *Encarsia perplexa* Huang & Polaszek and *Amitus hesperidum* Silvestri by specialists of the HDOA, USDA SEL, and University of Florida. These wasps are about 1.1 mm and are known to parasitize only the citrus blackfly and closely related whiteflies, but will not harm plants or people. In April, 1999, both wasps were approved by the Board of Agriculture for field release. The first release of these parasitic wasps was made on infested pummelo in Aiea, Oahu, in April 1999, followed by additional releases in other areas. The wasps quickly became established and soon controlled this pest on Oahu. The wasps have been released on the islands of Kauai (March 2000), Hawaii (May 2000), Maui (June 2000), and Molokai (April 2001). Additional releases are being made, however, control is not expected immediately. The wasps will eventually disperse on their own and successfully control the citrus blackfly just as they did on Oahu. Utilizing these wasps has been an effective and safe method for reducing infestations of this whitefly, although requiring time and patience before control takes place.



Figure 3. *Encarsia perplexa*, introduced citrus blackfly biocontrol agent.



Figure 4. *Amitus hesperidum* Silvestri, introduced citrus blackfly biocontrol agent.

Other control methods. Although applications of insecticides may help to temporarily reduce infestations of the citrus blackfly, it is not recommended due to hazards to the environment, people and pets, and existing biological control agents. Applications of a fine commercial oil will be less toxic to the natural enemy complex. It should be noted that, even though the scale-like citrus blackfly immature stages have been killed, either biologically or chemically, they will still remain attached to the leaves. The results of good control are observed in the subsequent flush of new growth. It is critical to keep citrus trees healthy by providing adequate water and some fertilizer to replenish sap and nutrients removed by infestations of this whitefly. Excessive pruning is not recommended because it will cause added stress to the trees.

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References

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