
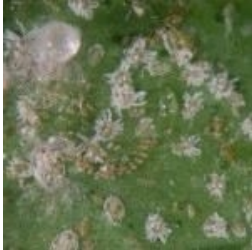



Whitefly on citrus

Aleurothrixus floccosus, *Dialeurodes citri* Woolly whitefly, citrus whitefly

	Prevention	Monitoring	Direct Control
 <p>Adults <i>A. floccosus</i> with eggs (J. Catalán, http://gipcitricos.ivia.es)</p>	<ul style="list-style-type: none"> Eliminate excessive vegetative shoots (where pest spreads from) Thin the crown to permit better air circulation but avoid severe pruning as this causes heavy sprouting Avoid excessive application of nitrogen that causes an exaggerated sprouting of the trees resulting in increasing the attack 	<ul style="list-style-type: none"> Monitor whiteflies throughout the year, especially during the sprouting season Note the presence of eggs, insects, symptoms, ants and parasitoids in 4 young shoots per tree (from 1% of the trees of the orchard): <ul style="list-style-type: none"> Adults are winged insects that are 2 mm in length and white in colour. Its body is covered with wax. They feed on the sap of the leaves. The females lay their eggs on tender shoots. Nymphs are flat and oval, and are covered with fine waxy filaments The eggs, nymphs and adults are located on the underside of the young leaves 	<ul style="list-style-type: none"> In the absence of natural enemies, release parasitoids (ej. <i>Amitus spiniferus</i>, <i>Cales noacki</i>, <i>Eretmocerus paulistus</i>, <i>Encarsia</i> spp.). Collect leaves in another orchard with parasitized nymphs and put them in paper bags with holes of 2-4 mm. Hang the bags into the canopy of the most affected trees. It is recommended to apply soapy solutions for their important braking action and because of the little effectiveness of the insecticides against this pest
 <p>Nymphs of <i>A. floccosus</i> (J. Catalán, http://gipcitricos.ivia.es)</p>	<ul style="list-style-type: none"> Avoid harmful or non-selective insecticides for natural enemies (ladybirds, lacewings, hoverflies and parasitoids) Control weeds in the nursery surroundings to reduce the presence of overwintering stages 	<ul style="list-style-type: none"> Symptoms: <ul style="list-style-type: none"> Fruit: development of sooty mould caused by honeydew secretion In case of intensive attack: growth inhibition of the twigs, loss of vigour and decreased production and photosynthetic capacity resulting from the abundant production of honeydew, sooty mold and woolliness 	<ul style="list-style-type: none"> Apply mineral oils 0.5% (commercially available) on attacked shoots Apply organic registered agricultural soaps on attacked shoots to eliminate adults, nymphs, honeydew and wax filaments on the nymphs to enhance the action of natural enemies. Repeat washes every 15 days during the dry season and monthly during the sprouting season.
 <p>Orange twigs affected by <i>A. floccosus</i> (A. Urbaneja, http://gipcitricos.ivia.es)</p>		<ul style="list-style-type: none"> Take control measure when the infestation level exceeds 20% of attacked shoots (or 20-30 nymphs/leaf in orange and lemon, and 5-10 nymphs/leaf in mandarin) and parasitism rate is below 60% 	<ul style="list-style-type: none"> During the rainy season, washes are not necessary as the rains cause high mortality, especially adults on young leaves In general, it is recommended to avoid the use of insecticides considering that natural enemies are very effective and the effect of insecticides is moderate. Besides eliminating natural enemies, insecticide applications subsequently result in more intense attacks of the pest

Note: Pesticides may be available to control this pest. Please check with the Ministry of Agriculture in your country to find out which pesticides are registered in your country and the local restrictions for their use.