

Autumn Phytosanitary Monitoring in Citrus and Persimmon

Red spider mite, cottony mealybug, fruit fly and woolly whitefly: population status and control strategy

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As part of our routine phytosanitary advisory and monitoring work on our farms, we have stepped up sampling in citrus and persimmon plots over the past few weeks. The aim is to catch early the pest upswings typical of late summer and early autumn — when temperatures are still mild and the fruit is beginning to ripen — and decide, on integrated production criteria, whether and when to intervene. Below we share the results of this monitoring, with photo and video material taken directly in the field.



Citrus plot where pest monitoring is being carried out.

Red spider mite (*Tetranychus urticae*) on citrus

The red spider mite is a polyphagous mite that, in warm, dry conditions — such as those persisting well into September — can complete its cycle in just a few days and cause populations to spike. It settles on the underside of leaves, feeding by puncturing plant cells; this causes characteristic chlorotic stippling and, in severe attacks, bronzing or leaf desiccation that reduces the tree's active photosynthetic surface.

Sampling is carried out with a hand lens and, where needed, a binocular loupe in the office, checking the upper and lower sides of leaves at different heights and canopy orientations, since the pest tends to concentrate first in the sunniest, dustiest areas. In our plots we have found mobile forms (reddish-orange adults) at still-low levels, but settled mainly on the fruit, so phytosanitary control has been recommended to prevent damage to it, favouring products that preserve beneficial fauna (predatory phytoseiid mites). Populations in the plots are currently low to moderate.



*Adult *Tetranychus urticae* on citrus fruit skin. Original photograph taken during sampling.*



Close-up of a red spider mite specimen on a citrus leaf.

Cottony mealybug (*Planococcus citri*) on citrus

The cottony mealybug is a mealybug that colonises shoots, leaf axils, the fruit calyx and other spots that are hard for phytosanitary products to reach, protected by its characteristic white waxy secretion. It feeds on sap and excretes honeydew, the substrate on which the sooty mould fungus settles; this blackish coating on leaves and fruit likewise reduces the plant's photosynthetic capacity and lowers the commercial value of stained fruit. Sampling has found active colonies — with adult females, egg masses and mobile nymphs ("crawlers") — on twigs and around the navel end of several fruits, in some cases with ants present protecting the mealybug in exchange for honeydew, which hampers the action of its natural enemies. Beneficial fauna (*Cryptolaemus montrouzieri* and parasitoids such as *Anagyrus pseudococci*) continue to be monitored to decide on any phytosanitary treatment against the pest.



Planococcus citri colony on a citrus twig, showing its characteristic waxy secretion.



*Close-up of another mealybug colony parasitised by *Anagyrus pseudococci*, found during sampling.*



Mobile mealybug nymphs on the fruit's skin; note the accompanying ant.



Close-up detail of the colony above.



Field video still: fruit with a honeydew stain and an incipient mealybug colony.



Field video still: an already well-developed mealybug colony on the fruit.

Rise in fruit fly (*Ceratitis capitata*) on persimmon

As persimmon ripening progresses and mild temperatures persist, it is common — and we are seeing it again this year — for *Ceratitis capitata* catches in the monitoring traps to increase markedly. Females lay their eggs under the skin of fruit that has already begun to change colour; the sting leaves a small, dark, sunken mark, clearly visible on the fruit examined, from which the larva develops inside the flesh.

This damage not only affects the fruit itself but can also encourage secondary rot and speed up ripening and fruit drop. For this reason trap density has been increased (using food and/or pheromone attractants) to pinpoint the timing of any intervention and, above all, to stay ahead on removing fallen and stung fruit from the plot — a key cultural measure for breaking the pest's cycle.



*Persimmon fruit with the characteristic egg-laying sting of *Ceratitidis capitata*.*



Comparison of two persimmon fruits with different degrees of fruit fly damage.

Woolly whitefly (*Aleurothrixus floccosus*) on persimmon: monitoring and treatment

In parallel, we have been monitoring woolly whitefly populations on organic persimmon. Females lay eggs on the underside of leaves, from which nymphs emerge, settle and feed on sap throughout their development; as with the mealybug, they excrete honeydew that leads to sooty mould on leaves and fruit, harming both photosynthesis and the crop's commercial appearance.

To control this pest, a combined treatment of potassium soap (potassium salts of vegetable fatty acids) and azadirachtin has been applied. Potassium soap acts by contact, dissolving the insect's waxy coating and membranes and causing it to dry out; azadirachtin, of plant origin (Neem extract), acts mainly as a growth regulator and feeding inhibitor, and is especially effective on the larval/nymphal stages. This combination aims to curb the proliferation of immature forms — the main producers of honeydew — thereby preventing sooty mould from developing on the plant's vegetative parts and fruit.



Woolly whitefly nymph after treatment with potassium soap and azadirachtin: note the characteristic brown rim caused by the breakdown of the protective waxy coating's lipid barrier and the leaking of the insect's internal fluids.



Close-up of another nymph, clearly showing the progressive damage to it.

Next step: introducing *Beauveria bassiana*

As a complement to these treatments, the introduction of *Beauveria bassiana* is planned — an entomopathogenic fungus that parasitises whitefly (and other soft-cuticled insects) by penetrating through their cuticle. Its effectiveness depends closely on environmental conditions: it needs high relative humidity, around 90–92%, and moderate temperatures, between 23 and 25°C, for its spores to germinate and the fungus to develop on the insect. We are therefore waiting for weather conditions — expected with the arrival of the first autumn rains and the seasonal drop in temperature — to be right for maximising its proliferation and adding it to the control strategy in a way that is compatible with beneficial fauna.

Conclusions and next steps

- Weekly monitoring of red spider mite and cottony mealybug on citrus continues, prioritising the conservation of beneficial fauna over chemical treatment.
- *Ceratitis capitata* trapping on persimmon has been stepped up in response to the seasonal rise in catches, together with the removal of fallen and stung fruit.
- Treatment with potassium soap and azadirachtin against woolly whitefly on organically grown persimmon continues, with monitoring of its effectiveness on larval populations.
- The introduction of *Beauveria bassiana* will be considered once humidity and temperature conditions are optimal for its development.

We will keep reporting on how these pests develop and on the results of the measures applied in upcoming posts on this blog, as part of our commitment to sustainable production that respects the crop's natural balance.

Photographs and videos: our own material, taken during field sampling, September 2026.