

Note technique

A new serious pest on Citrus of Crete-Greece (*Parabemisia myricae* Kuwana fam. Aleyrodidae).

S. MICHELAKIS and V. ALEXANDRAKIS*

A whitefly infestation on Citrus trees was noticed for the first time in Crete during September 1988. This focus of infestation which initially covered 2 000 - 3 000 trees of oranges and mandarines was located in the rural area between the villages Perivolia and Mournies in a distance of about 4 to 5 km South of Chania town. It was thought at the beginning that the infestation was due to invasion of one of the eight whitefly species which attack the Citrus trees in Mediterranean countries among which the most important are the species *Aleurothrixus floccosus* Maskell and *Dialeurodes citri* (Ashmead). However, after sending specimens, with different insect stages, to the Natural History Museum of London it was identified as being the Japanese bayberry whitefly *Parabemisia myricae* (Kuwana) which is an asiatic whitefly species. This was never before noticed in Greece and for this reason it was not included in tables of the insect pests of our country (Argyriou *et al.*, 1976 ; Isaakides, 1941) but it is maybe a new record for the insect pests of the whole Europe except Cyprus where it already exists. Soon after the first recovery the insect was also found on other Citrus trees around the focus area. The insect population density varies among the different places and depends on the existence of new growth on the trees but it is generally higher in the zone along the costal area. The new Citrus problem worries the growers who unfortunately react by repeated organophosphorus insecticide applications.

At the moment, in the absence of effective natural enemies, the Japanese bayberry whitefly demonstrated potential as a serious Citrus pest capable of causing severe damage. This is also due to the high reproductive capacity of the insect. Its reproduction is mainly parthenogenetic while its life cycle is also very short. During our observations we only record females among the adult insects. It is reported however that the male whiteflies are extremely rare, in a check in California 5 males to 1 200 females were counted while by the same authors it was found that the entire life cycle of the whitefly from egg to adult required as few as

21 days under variable day/night conditions of 21.1° to 17.3°C and 65 to 100 percent relative humidity (Rose *et al.*, 1981).

Japanese bayberry whitefly is apparently native to Japan and to some other parts of Asia as well (Mound and Halsey, 1978). It was first detected in Southern California in October 1978 and it was expanded very rapidly so that by June 1980 they have infected a big number of USA countries (Rose *et al.*, 1981). This insect was for the first time noticed in Cyprus during 1983 causing damage mainly to Citrus but it was also found in grapes and on avocados (Anonymous, 1985 ; Orphanides per commun.) but it was also found in Egypt, Turkey and Israel where it was also found causing damage to avocado (Barbagallo *et al.*, 1986 ; Rosen, 1986). The Japanese bayberry whitefly is reported to feed on plants of 14 families (Mound and Hasley, 1978).

The adults of this species have a grey colour in the thorax and are smaller than the other main whitefly species which infect Citrus, that is the European species *A. floccosus* (Maskell) and *D. citri* (Ashmead) as well as the *Aleurocanthus woglumi* Ashby which has not appeared in Europe yet. The adult female lays eggs preferably on the new foliage. Eggs are laid on both leaf surfaces and each egg is attached on the surface with a supporting pedicel. They are yellow in colour but they darken within a day and become conspicuous to the naked eye. Most of the newly hatched crawlers move to the under surface of the leaf where they settle and feed with their sucking mouth parts while few remain on the upper surface. The plants weakened by the sucking of the sap but in addition as the honeydew is secreted and covers the leaf surfaces the growth of sooty mold, *Cladosporium* sp. darken the leaves and reduces the physiological functions of the plant. The pupa-case is pale yellow greenish and is characterized by the presence of 13 pairs of rather long tubercled spines along all the margin (Barbagallo *et al.*, 1986).

As far as the biological control of the insect is concerned, it is reported that the predator mites *Amblyseius rubini* (Swirski and Amitai) and *A. swirskii* Athias-Henrit together

* - Institute of Subtropical Plants and Olive Tree - Chania - Crete - Greece.



Photo 1 - *Parabemisia myricae* on Citrus leaves.

Photo 2 - *Parabemisia myricae* damage on Citrus leaves.



Photo 3 - *Parabemisia myricae* damage on Grapefruit.

with the parasitoids *Prospaltella bemisiae* Ishii, *Encarsia* sp. and *Eretmocerus* sp. are very active and their activity may ensure a valuable biological control.

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