PLANT PEST FACTSHEET

Banded-winged whitefly
Trialeurodes abutiloneus

Figure 1. Adult *Trialeurodes abutiloneus*

Background

During November 2010, *Acacia* sp., *Banisteriopsis caapi* and *Brugmansia* sp. plants imported by courier from the USA, were inspected by the Plant Health and Seeds Inspectorate (PHSI) and found to be infested with whiteflies. Samples were submitted to The Food and Environment Research Agency laboratory at Sand Hutton and identified as *Trialeurodes abutiloneus* (Haldeman) (Hemiptera: Aleyrodidae), the banded-winged whitefly. The infested plants were destroyed.

This is the only the second time that this non-indigenous, viruliferous whitefly has been intercepted in Europe. It had been previously found during April 2005 on sixty *Hibiscus rosa-sinensis* var. Kopper King plants imported from the USA at Gatwick Airport and at a commercial plant nursery.

Geographical Distribution

Trialeurodes abutiloneus occurs naturally in North, South and Central America and the Caribbean.

Host Plants

Trialeurodes abutiloneus is a highly polyphagous pest, feeding on approximately 140 host species in 33 plant families. Commercially important ornamental host genera include *Acacia, Aster, Bidens, Citrus, Eucalyptus, Euphorbia, Fuchsia, Hibiscus, Impatiens, Pelargonium, Petunia, Solidago* and *Veronica*. Field and orchard crop genera that may be affected include *Brassica, Citrus, Lactuca, Phaseolus* and *Solanum*. The whitefly exhibits a preference for feeding on plants belonging to the families Malvaceae and Solanaceae.

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Figure 2. Banded-winged whitefly puparium. Magnification x 55

Figure 3. Glasshouse whitefly puparium. Magnification x 55

Figure 4. Banded-winged whitefly puparium with extensive dorsal pigmentation. Magnification x 55

Figure 5. Banded-winged whitefly puparium with two dorsal pigmented spots. Magnification x 55

Figure 6. Banded-winged whitefly adult with distinct zigzag banded wings. Magnification x 40

Figure 7. Glasshouse whitefly adult with clear white wings. Magnification x 40

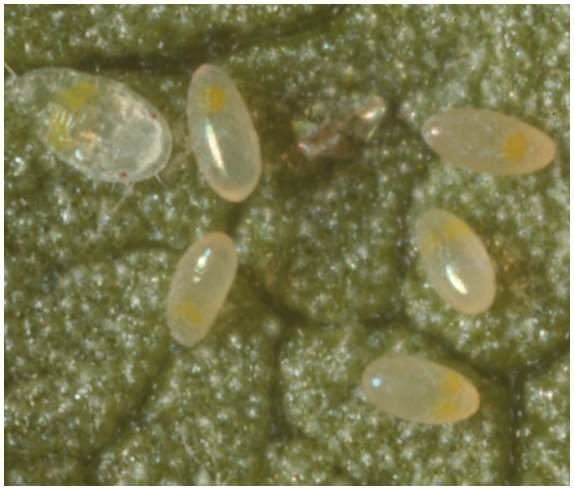

Figure 8. Banded-winged whitefly mature eggs are oval, lie flat on the leaf surface and are cream to yellow. Magnification x 75

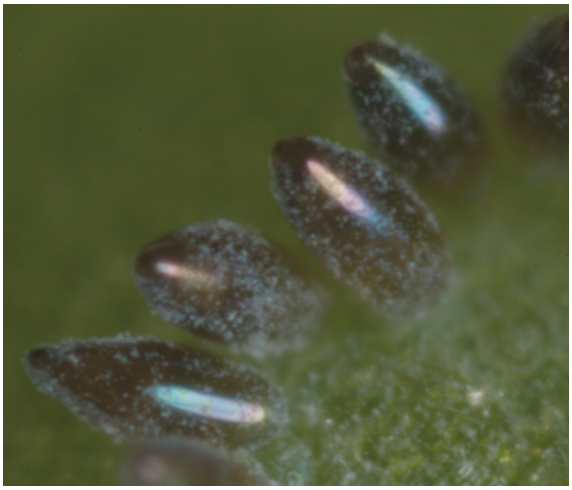

Figure 9. Glasshouse whitefly mature eggs are elliptical, erect, and almost black. Magnification x 75

Economic Importance and Damage

Trialeurodes abutiloneus is an occasional pest of field and ornamental plants in the USA and has been recorded damaging cotton, soybean and vegetables. It has the potential to cause economic damage to a number of field and ornamental crops in southern Europe and to ornamental crops in glasshouses in continental and northern Europe. The adults transmit four viruses, *Abutilon yellows virus* (AYV), Diodia vein chlorosis virus (DVCV), *Sweet potato chlorotic stunt virus* (SPCSV) and *Tomato chlorosis virus* (ToCV). Infestations of the larvae occur on the foliage, and these may result in reduced vigour and general debility of the host plant. Heavy infestations also result in chlorotic spotting, premature leaf shedding, dieback of stems and wilting. In addition to the direct feeding damage, the honeydew deposited on the leaves and fruit serves as a medium for the growth of sooty moulds. The sooty mould results in a reduction of photosynthetic area and lowers the value of ornamental plants and plant produce.

Pest Biology and Appearance

The biology of *T. abutiloneus* is similar to the much more intensively studied glasshouse whitefly (*Trialeurodes vaporariorum*). Temperature greatly affects the time required to complete a generation. *Trialeurodes abutiloneus* has six developmental stages, the egg, four larval instars and the adult. Eggs are laid either singly in a random manner or in small groups on the undersides of leaves. The eggs are oval and have a stalk-like peduncle that is inserted into a slit made by the female's ovipositor in the leaf surface. The peduncle draws water into the egg from the leaf thereby preventing desiccation before hatching. The first instar larvae are mobile, and crawl a short distance before selecting a suitable feeding site. The subsequent larval stages are sessile. The adults have the ability to both walk and fly.

The larval instars of *T. abutiloneus* (Fig. 2) may be easily mistaken for those of the ubiquitous glasshouse whitefly (Fig. 3). However, the puparia of *T. abutiloneus* may have a variable amount of dark brown dorsal pigmentation (Figs. 4-5), which is absent in *T. vaporariorum*. The adults of the two species are easily distinguished as mature *T. abutiloneus* have zig-zag markings on their forewings (Fig. 6), whereas *T. vaporariorum* adults have no markings on their wings (Fig. 7). The eggs of the two species are also easily separated. The eggs of *T. abutiloneus* (Fig. 8) are scattered, laid singly or in small random groups. The eggs have a long peduncle and consequently the eggs usually lay horizontally, parallel to the leaf surface. The mature eggs are cream or yellow in colour. The eggs of *T. vaporariorum* (Fig. 9) are often laid in semi-circles, or in small groups. The eggs have a short peduncle and remain erect, at right angles to the leaf surface. The mature eggs become a dark grey to black colour.

Advisory Information

In the USA, where *T. abutiloneus* occurs naturally, systemic compounds are used for its control. Work is also being conducted to develop varieties of crops, such as cotton and soybean, that are resistant to whitefly species, including *T. abutiloneus*.

Natural enemies attacking *T. abutiloneus* in its native range include the parasitoid, *Eretmocerus staufferi*, the entomopathogenic fungus, *Orthomyces aleyrodes*, the predatory bug *Orius insidiosus* and a variety of coccinellid beetles. Although none of these are commercially sold in the UK, other *Eretmocerus* and *Orius* spp. are available, but their efficacy against *T. abutiloneus* is unclear.

Outbreaks of *T. abutiloneus* occurring in the UK should be eradicated by the destruction of infested material and/or insecticide applications, under the advice of the PHSI. Insecticides currently utilised for the eradication of outbreaks of *Bemisia tabaci*, the tobacco whitefly, are expected to be effective against the banded whitefly, e.g. thiacloprid and spiromesifen.

Suspected outbreaks of *T. abutiloneus* should be reported immediately to your local Fera Plant Health and Seeds Inspector.
Tel.: 01904 465625
Email: planthealth.info@fera.gsi.gov.uk
Web: www.defra.gov.uk/fera/plants/plantHealth

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