Bemisia tabaci

Taxon	Family / Order / Class / Phylum
Bemisia tabaci (Gennadius, 1889)	Aleyrodidae / Hemiptera / Insecta / Arthropoda

COMMON NAMES (English only)
Cotton whitefly
Sweet potato whitefly
Tobacco whitefly
Cassava whitefly
Silver leaf whitefly

SYNONYMS
Aleyrodes inconspicua Quaintance
Aleyrodes tabaci Gennadius
Bemisia (Neobemisia) hibisci Visnya
Bemisia (Neobemisia) rhodesiaensis Visnya
Bemisia achyranthes Singh
Bemisia bahiana Bondar
Bemisia costa-limai Bondar
Bemisia emiliae Corbett
Bemisia goldingi Corbett
Bemisia gossypiperda Misra and Lamba
Bemisia gossypiperda var. *mosaicivectura* Ghesquiere
Bemisia hibisci Takahashi
Bemisia inconspicua Quaintance
Bemisia longispina Priesner and Hosny
Bemisia lonicerae Takahashi
Bemisia manihotis Frappa
Bemisia minima Danzig
Bemisia miniscula Danzig
Bemisia nigeriensis Corbett
Bemisia rhodesianensis Corbett
Bemisia signata Bodnar
Bemisia tabaci (Gennadius) Takahashi
Bemisia vayssierei Frappa

Nymphal exuvia of sweetpotato whitefly, *Bemisia tabaci*

Photo: Jean-Claude Streito

SHORT DESCRIPTION
Small, about 1 mm long, sap-sucking insect with two pairs of white wings (whitefly) with a white to light yellow body, covered with waxy powdery material. Larvae (nymphs) are also sap-sucking, feeding on a very wide range of plants (> 900 spp.). This taxon corresponds to a species complex with 19 identified biotypes and 2 described cryptic species.

BIOLOGY/ECOLOGY

Dispersal mechanisms

Directional adult flight is limited but winds may carry flying adults over long distances due to their small size. Intercontinental dispersal of eggs, nymphs and adults occur with plant trade.

Reproduction

It has a high reproductive potential; 80 to more than 300 eggs produced per female during their lifetime. Unmated females can reproduce by parthenogenesis in which the females produce only male progeny; 15-70 days from egg to adult depending on temperature; up to 11-15 generations per year.

Known predators/herbivores

Many predators including true bugs (Anthocoridae and predatory Miridae), beetles (Coccinellidae), lacewings (Chrysopidae, Hemerobiidae, Coniopterygidae), flies (Dolichopodidae, Syrphidae, Anthomyoodae), ants (Formicidae), spiders (Araneida) and mites (Acarina: Phytoseiidae, Stigmaeidae); several chalcid parasitoids (*Encarsia* spp., *Eretmocerus* spp.)

Resistant stages (seeds, spores etc.)

HABITAT

Native (EUNIS code)

Unknown

Habitat occupied in invaded range (EUNIS code)

I: Regularly or recently cultivated agricultural, horticultural and domestic habitats

I1: Arable land and market gardens; greenhouses

Habitat requirements

Development occurs between temperatures ranging from 10°C to 32°C, 27°C appearing to be the optimal temperature

DISTRIBUTION

Native Range

Not really known; possibly India

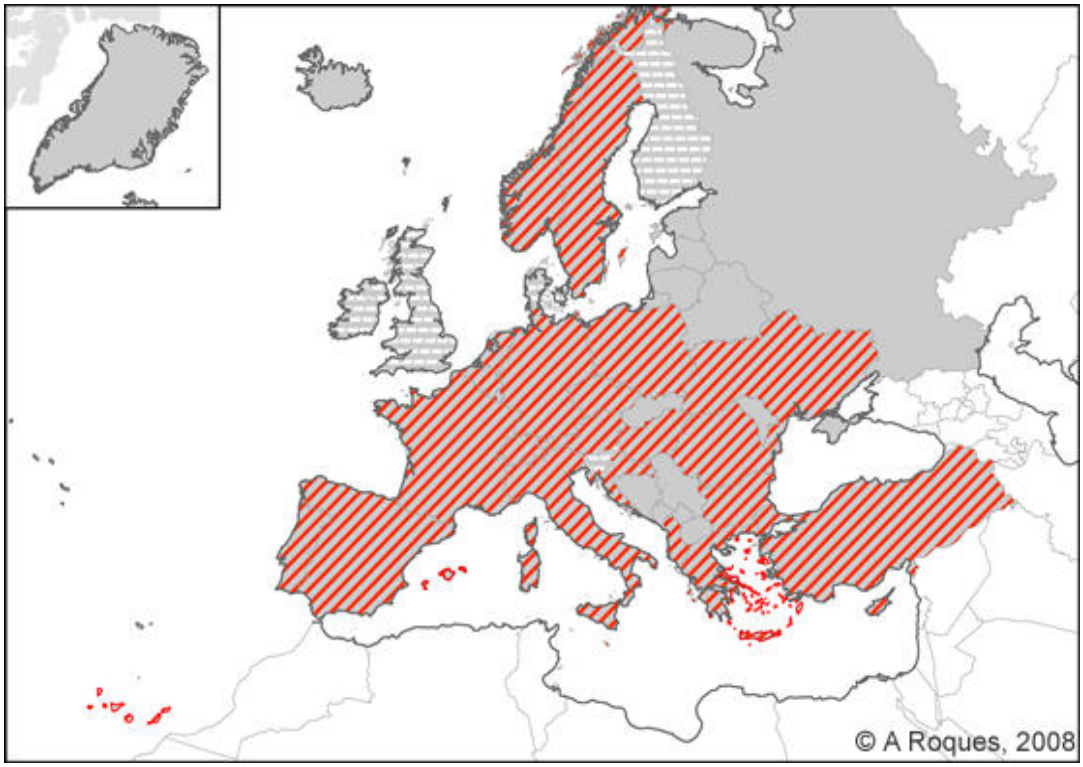
Known Introduced Range

Reported from all continents except Antarctica; present in fields in most of southern Europe from Portugal to Turkey, and also in Slovakia and Ukraine; usually restricted to greenhouses in Western, Central and Northern Europe. Apparently eradicated in Finland, Ireland and United Kingdom.

Trend

During the last 15 years it has become largely widespread. The major threats for Europe concern greenhouses in northern Europe and the spread of the B biotype in Cyprus, southern France, Israel, Italy and Spain.

MAP (European distribution)



Legend

	Known in country		Known in CGRS square		Known in sea
	Eradicated				

INTRODUCTION PATHWAY

Trade of ornamental plants (e.g. cut flowers, potted plants, cuttings)

IMPACT

Ecosystem Impact

Unknown.

Health and Social Impact

Unknown.

Economic Impact

Heavy infestations cause important yield losses, ranging from 20 to 100% depending upon the crop and season, to both field and greenhouse agricultural crops and ornamental plants. Three types of damage are observed. Direct feeding damage by adults and larvae may reduce host vigour and growth, cause chlorosis and uneven ripening, and induce physiological disorders. Indirect damage results from the accumulation of honeydew produced by the nymphs, which serves as a substrate for the growth of black sooty mould on leaves and fruit. The mould reduces photosynthesis and lessens the market value of the plant or yields it unmarketable. Nymphs of B biotype also induce phytotoxicity reactions in infested plants. Finally, it is considered the most common and important whitefly vector of plant viruses worldwide. Being the vector of over 100 plant viruses (mostly *Begomovirus*, but also viruses from families Closteroviridae and Potyviridae), a small population of whiteflies is sufficient to cause considerable damage.

MANAGEMENT

Prevention

Because low infestations are difficult to detect in a cargo, it is better to avoid importations from infested areas. Sequential plantings, avoiding the establishment of affected crops near infested fields, can be used. Adult activity and abundance can be monitored using yellow sticky traps.

Mechanical

Unknown.

Chemical

A number of insecticides provided effective control in the past but resistance has developed rapidly, especially in the B biotype.

Biological

The use of natural enemies such as chalcids (*Encarsia Formosa, Eretmocerus* spp.) and entomopathogenic fungus (*Verticillium lecanii*) is moderately efficient but cannot sufficiently decrease infestations to stop virus transmission.

REFERENCES

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OTHER REFERENCES

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