

# *Frankliniella occidentalis*



Taxon	Family / Order / Class / Phylum
<i>Frankliniella occidentalis</i> (Pergande, 1895)	Thripidae / Thysanoptera / Insecta / Arthropoda

## COMMON NAMES (English only)

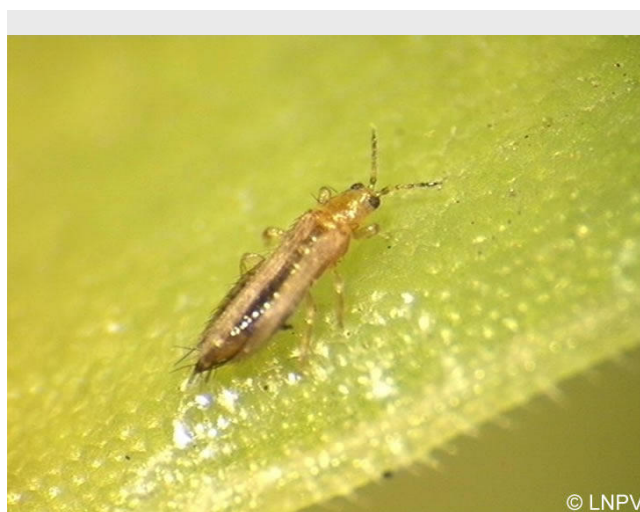
Western flower thrips  
Alfalfa thrips

## SYNONYMS

*Euthrips occidentalis* Pergande, 1895  
*Euthrips tritici* Crawford, 1909  
*Frankliniella helianthi* (Moulton, 1911)  
*Frankliniella tritici* var. *Moultoni* Hood, 1914  
*Frankliniella moultoni* Hood, 1914  
*Frankliniella trehernei* Morgan, 1925  
*Frankliniella californica* Moulton, 1931  
*Frankliniella dahliae* Moulton, 1948

## SHORT DESCRIPTION

Tiny, slender insect with narrow fringed wings. Males, 1.2–1.3 mm long, are pale yellow, with a narrow abdomen rounded at the end. Females, 1.6–1.7 mm long, are yellow to brown, with a more rounded abdomen ending in a point. Nymphs (larvae) are yellowish-white. Adults and larvae suck plant fluids from flowers and leaves, and also eat pollen and nectar on a wide range of plants (244 species from 62 families at least). It is an outdoor pest as well as a glasshouse pest.



Adult of *Frankliniella occidentalis*

Photo: LNPV; Laboratoire National de Protection des Végétaux, France

## BIOLOGY/ECOLOGY

### Dispersal mechanisms

Adults can be easily carried by winds, but also by clothes, equipment and containers not properly cleaned. Intercontinental dispersal of eggs, larvae and adults is taking place with the plant trade.

### Reproduction

They can reproduce throughout the year in glasshouses with as many as 12–15 generations per year. The overall life cycle lasts from 44.1 days at 15°C to 15 days at 30°C. A female can lay 20–40 eggs; unmated females produce males. Different developmental stages are typically found in different parts of plants: eggs in leaves, flower tissue and fruits; nymphs on leaves, in buds and flowers and at the base of some vegetable fruits; pupae in soil or in hiding places on host plants such as the bases of leaves; adults on leaves, in buds and flowers.

### Known predators/ herbivores

Predated by mites and anthocorid bug predators; parasitized by a host-specific entomopathogenic nematode, *Thripinema nicklewoodi*.

### Resistant stages (seeds, spores etc.)

## HABITAT

### Native (EUNIS code)

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

### Habitat occupied in invaded range (EUNIS code)

I: Regularly or recently cultivated agricultural, horticultural and domestic habitats, II: Arable land and market gardens; greenhouses

## Habitat requirements

### DISTRIBUTION

#### Native Range

North America (United States, Canada, Mexico).

#### Known Introduced Range

Reported from all continents except Antarctica; Present in glasshouses in northern and central Europe but already in the field in southern Europe.

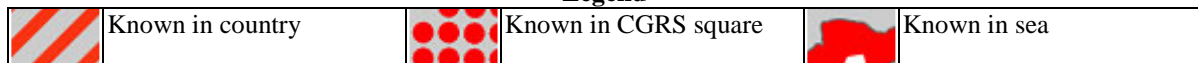
#### Trend

Continuous and rampant spread since 1980.

### MAP (European distribution)



#### Legend



### INTRODUCTION PATHWAY

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

### IMPACT

#### Ecosystem Impact

Unknown

#### Health and Social Impact

#### Economic Impact

Flowers and foliage of a great number of economically important crops are affected, in glasshouses as well as outdoors. On ornamental flower crops, feeding induces discolouration, indentation, distortion and silvering of the upper leaf surface as well as scarring and discoloration of petals and deformation of flower heads (e.g. chrysanthemum, gerbera), largely reducing their economic value. In orchids, eggs laid in petal tissues cause a 'pimpling' effect on flowers. The thrips also kills or weakens terminal buds and blossoms in fruit trees (e.g. apricot, peach) and roses, and on most fruiting vegetables, especially cucumbers. In addition, nymphs are vectors of tobacco streak ilarvirus (TSV) and tomato spotted wilt virus (TSWV), which is inducing severe diseases on ornamental and vegetable crops in Europe.

## **MANAGEMENT**

### **Prevention**

Blue sticky traps can be used to detect initial infestation and monitor adult population levels.

### **Mechanical**

Unknown

### **Chemical**

It is difficult because the thrips are resistant to most pesticides and feed deep within the flower or on developing leaves.

### **Biological**

Predatory mites (*Neoseiulus cucumeris*, *Amblyseius* spp. and *Hypoaspis* spp.) and minute pirate bugs (*Orius insidiosus*) provide effective biological control, in glasshouses at least.

## **REFERENCES**

- Del Bene G, Gargani E (1989) [A contribution to the knowledge of *Frankliniella occidentalis*] (in Italian). Redia 72:403–420
- EPPO/CABI (1997). *Frankliniella occidentalis*. In CAB International (ed) Quarantine Pests for Europe, Wallingford, United Kingdom, pp 267–272
- Mantel WP (1989) Bibliography of the western flower thrips, *Frankliniella occidentalis*. Bulletin SROP 12:29-66

## **OTHER REFERENCES**

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