

Data Sheets on Quarantine Pests

Eotetranychus lewisi

IDENTITY

Name: *Eotetranychus lewisi* (McGregor)

Synonyms: *Tetranychus lewisi* McGregor

Taxonomic position: Arachnida: Acarina: Prostigmata: Tetranychidae

Common names: Lewis spider mite (English)

Notes on taxonomy and nomenclature: The close and confusing similarity between the genus names *Eotetranychus* and *Eutetranychus* causes problems in the literature. The Bayer lists include a so-called *Eutetranychus lewesi*, coded EUTELE. This is a misspelling, not a synonym.

Bayer computer code: EOTELE

EU Annex designation: II/A1

HOSTS

Citrus spp. (in USA), pawpaws (*Carica papaya*) (in Mexico, El Salvador, Honduras and Nicaragua) and poinsettias (*Euphorbia pulcherrima*) (in USA, Costa Rica, El Salvador, South Africa, and Madeira) are perhaps the most important hosts but it has also been recorded from the following: *Bauhinia* sp., *Bixa orellana*, *Bocconia arborea*, *Ceanothus* sp., *Ceiba acuminata*, *Crotalaria* sp., *Cucurbita* spp., *Ditaxis lanceolata*, *Encelia frutescens*, *Euphorbia marginata*, *Ficus* sp., *Haplopappus spinulosus*, *Ipomoea* sp., *Jatropha cardiophylla*, *Mimosa laxiflora*, *Olea* sp., *Pinus cembroides*, *P. nelsoni*, *P. ponderosa*, *Populus deltoides*, peaches (*Prunus persica*), *Ricinus communis*, *Rosa* sp., *Scirpus californicus*, *Solanum elaeagnifolium*, *Sphaeralcea orcuttii* and *Trifolium* sp.

GEOGRAPHICAL DISTRIBUTION

Country of origin not known, possibly Central America where it occurs on native *Euphorbia* spp.

EPPO region: Portugal (Madeira; Carmona (1992)).

Africa: South Africa.

North America: Mexico, USA (southwestern states, California, Washington, Michigan, Massachusetts).

Central America and Caribbean: Costa Rica, El Salvador, Honduras, Nicaragua.

South America: Brazil (unconfirmed).

EU: Present.

BIOLOGY

On most plants, *E. lewisi* feeds on the underside of the leaves, preferring the regions close to the main leaf veins but eventually the population occupies the whole of the underside of the leaf. On citrus, the eggs are laid in depressions on the surface of the fruit and the mites feed on the developing fruit and do not usually damage the leaves. The life cycle from egg

to adult on citrus in California (USA) averages 12 days for the male and 14.5 days for the female (Jeppson *et al.*, 1975).

DETECTION AND IDENTIFICATION

Symptoms

On citrus, the mites feed mostly on the fruit resulting in a stippling of the rind, heavy infestations producing silvering on lemons and silvering or russetting on oranges. Although webbing may be profuse and conspicuous as it collects dust, there is generally no damage to the leaves (Jeppson *et al.*, 1975).

On poinsettias, lightly infested leaves have a speckled or peppered appearance produced by the large number of clear yellow spots or yellowish patches of varying size with indefinite borders all over the leaf, while the undersides of leaves show conditions varying from areas of light-green coloration to obvious chlorosis. Sometimes there is an intense yellow speckling on both sides of the leaves. In severe attacks, the interveinal areas turn yellow and contrast strongly with the green veins. This condition can be mistaken for that caused by zinc or magnesium deficiency (Ochoa *et al.*, 1991). Heavy infestation on the undersides of leaves produces profuse webbing, especially around the flower centres, and chlorotic leaves, eventually leading to extensive leaf drop (Doucette, 1962). Injury caused to *Ricinus communis* is similar to that caused to poinsettias (Doucette, 1962).

On pawpaws, feeding causes chlorosis and distortion of the young leaves, resembling that caused by virus diseases. In severe infestations, the young leaves lose their laminas, while the leaf veins remain. This condition especially can lead to a mistaken diagnosis of a virus disease in commercial plantations. Damage to older leaves resembles that on poinsettias, which can be confused with that caused by hormonal herbicides (Ochoa *et al.*, 1991).

Morphology

Eggs

Spheroidal, whitish to faintly orange in colour, with a short spike arising from the top of the egg without "guy-line" threads from the end of the spike to the plant (in contrast to that of the citrus red mite, *Panonychus citri*).

Larva

There is no published description of the larval stages.

Adult

The body of the female is light-yellow to whitish in colour, the legs and gnathosoma are whitish with a slight reddish tone (Ochoa *et al.*, 1991). Identification requires examination of cleared and mounted specimens of both sexes by transmitted light microscopy. Diagnostic descriptions and keys are provided by Jeppson *et al.*, (1975) and Smith-Meyer (1974, 1987).

E. lewisi may be separated from other known species of *Eotetranychus* by the following combination of characters: the ventral body striae in the female immediately anterior to the genital flap and on the flap itself run transversely; tibiae I and II in both sexes bear 9 and 8 tactile setae, respectively, and there are 5 tactile setae on tarsus I proximal to the duplex setae; the peritremes are hooked distally in both sexes; the male aedeagus is distinctive in having a gentle sigmoid bend without a distinct distal knob or tip; chromosome number (n) = 2.

MEANS OF MOVEMENT AND DISPERSAL

Spider mites mainly disperse by wind currents and in the field this is probably the main means of dispersal for *E. lewisi*. In glasshouses, infestation of poinsettias was thought to have been brought about by the introduction of infested cuttings from outside.

PEST SIGNIFICANCE

Economic impact

In the USA, *E. lewisi* populations increase most rapidly on *Euphorbia marginata*, poinsettias and *Ricinus communis* (all Euphorbiaceae) under glass. If not controlled, the resulting leaf discoloration and leaf drop ruin the sale value of the plants. On citrus, *E. lewisi* is considered to be of very minor importance (Doucette, 1962), occurring occasionally in southern California (USA).

Control

Acaricides used to control other spider mites effectively control *E. lewisi* (Jeppson *et al.*, 1975). One spray application in glasshouses was usually found to be sufficient during an outbreak in 1958 in the USA although most growers gave a second application to avoid reinfestation from viable eggs. It is important to spray the undersides of the leaves to which the mite is restricted. Sprays of parathion, demeton and dicofol gave adequate control and two applications of sulfotep aerosol at 5-day intervals resulted in 100% mortality. No injury to poinsettia was noted when materials were applied before bracts showed colour (Doucette, 1962).

On citrus, signs of infestation on fruits are removed during the harvesting process. Treatments used against other tetranychid mites will control injurious populations if they should occur.

The phytoseiid mite *Amblyseius californicus* was found associated with *E. lewisi* during the outbreak in American greenhouses growing poinsettias in 1958. It was thought that this species had been at least partly responsible for keeping populations in check in later years (Doucette, 1962).

Phytosanitary risk

E. lewisi has not been classed as a quarantine pest by any regional plant protection organization. Its importance on citrus seems insufficient for it to be classed as a quarantine pest by EPPO on that account. On the other hand, it does seem to present a risk to glasshouse poinsettias.

PHYTOSANITARY MEASURES

Any imported material of poinsettias or other glasshouse ornamental hosts should come from a place of production found free from the pest.

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