

Competence assessment when proficiency tests are infrequent or absent

Some experiences from the Plant Health laboratory of INIAV

Jorge Fradique
Oeiras, 20th April 2023

I. Lewis Spider Mite (Official Control Plan quarantine species)

Animalia

Arthropoda

Chelicerata

Arachnida

Acarida

Tetranychidae

Eotetranychus lewisi McGregor



Chlorosis and bronzing of the leaves/fruits where feeding occurs, light to high webbing and reduction in fruit production at high mite densities

Hosts

Probably native to Central America.

Associated mainly with *Euphorbia* spp., namely with poinsettia, *E. pulcherrima*.

Also found on many other plant species,

including some economically important crops:

Abutilon, *Acacia*, *Ambrosia*, *Antigonon*, *Argythamnia*, *Arracacia*, *Bauhinia*, *Bixa*, *Bocconia*, *Brickellia*, *Brugmansia*, *Cardiospermum*, *Carica*, *Ceanothus*, *Ceiba*, *Citrus*, *Cleome*, *Cnidoscolus*, *Crotalaria*, *Croton*, *Cucurbita*, *Encelia*, *Erythrina*, *Euphorbia*, *Ficus*, *Fragaria*, *Gossypium*, *Haplopappus*, *Heterotheca*, *Hydrangea*, *Ipomoea*, *Isocoma*, *Jatropha*, *Koelreuteria*, *Lycium*, *Malpighia*, *Malus*, *Medicago*, *Mimosa*, *Monarda*, *Olea*, *Pinus*, *Populus*, *Prunus*, *Pyrus*, *Quercus*, *Ricinus*, *Rosa*, *Rubus*, *Schoenoplectus*, *Solanum*, *Sphaeralcea*, *Trifolium*, *Tropaeolum*, *Vachellia*, *Vitis*, *Xanthisma*.



Risks and Categorization

Eotetranychus lewisi can reduce the quality of poinsettia and the yield of peaches, and is a growing concern for strawberry and raspberry growers in the American continent.

A mite pest with economic importance in deciduous fruit trees in north-central Mexico, mostly in peaches.

The EFSA Panel concluded that should *E. lewisi* be introduced in the EU similar impacts could be expected (EFSA, 2017).



EU List of Union quarantine pests, ANNEX II

Eotetranychus lewisi (McGregor) [EOTELE]

Establishment is most likely in southern Europe, and multiple generations are possible (EFSA, 2017).



SCIENTIFIC OPINION

ADOPTED: 24 May 2017

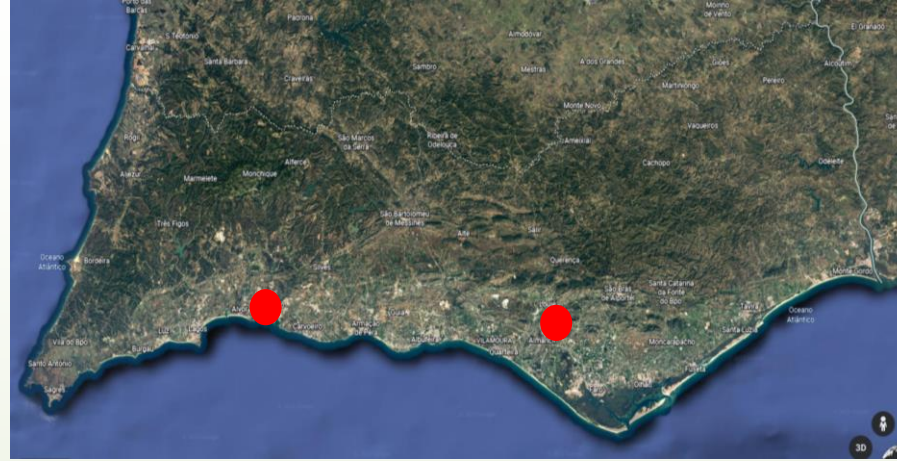
doi: 10.2903/j.efsa.2017.4878

Pest risk assessment of *Eotetranychus lewisi* for the EU territory

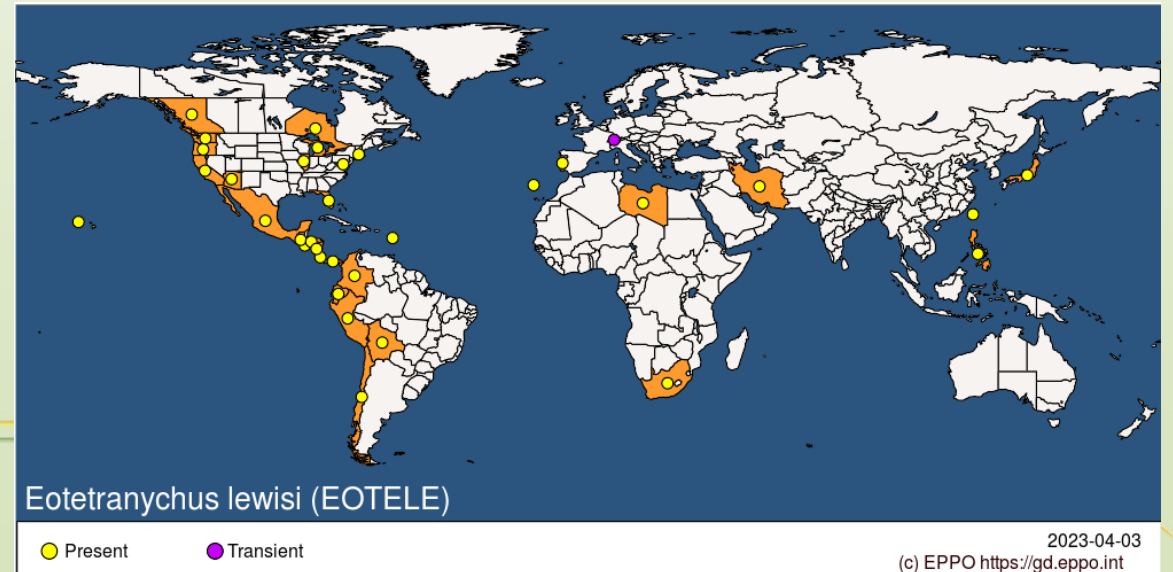
EFSA Panel on Plant Health (PLH),
Michael Jeger, Claude Bragard, David Caffier, Thierry Candresse, Elisavet Chatzivassiliou,
Katharina Dehnen-Schmutz, Gianni Gilioli, Jean-Claude Grégoire, Josep Anton Jaques Miret,
Alan MacLeod, Bjoern Niere, Stephen Parnell, Roel Potting, Trond Rafoss, Vittorio Rossi,
Gregor Urek, Ariena Van Bruggen, Wopke Van Der Werf, Jonathan West, Stephan Winter,
Filippo Bergeretti, Niklas Bjorklund, Olaf Mosbach-Schulz, Sybren Vos and
Maria Navajas Navarro

In Europe...

In outdoor conditions, established in Madeira island (Portugal) since 1988, collected on *E. pulcherrima* and on *Vitis* sp. (Carmona, 1992)...

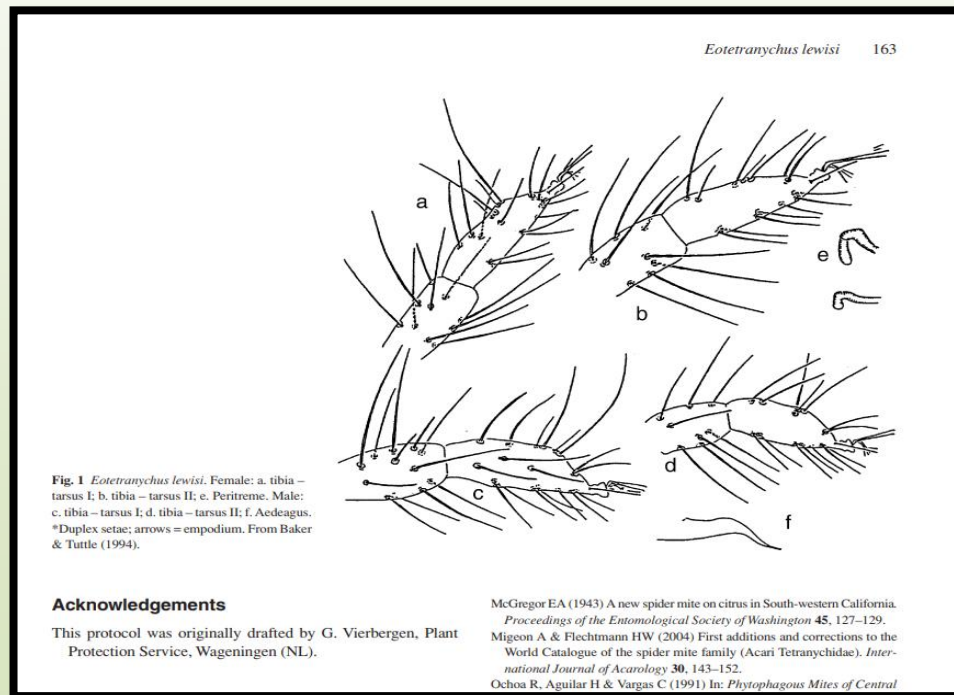


...and in 2019, detected in the Algarve, southern mainland Portugal (first established population in mainland Europe).



Official Control Plan

Reference:
PM7/068(1) Diagnostic for *Eotetranychus lewisi* (EPPO, 2006), identification based on taxonomic discriminatory characters...

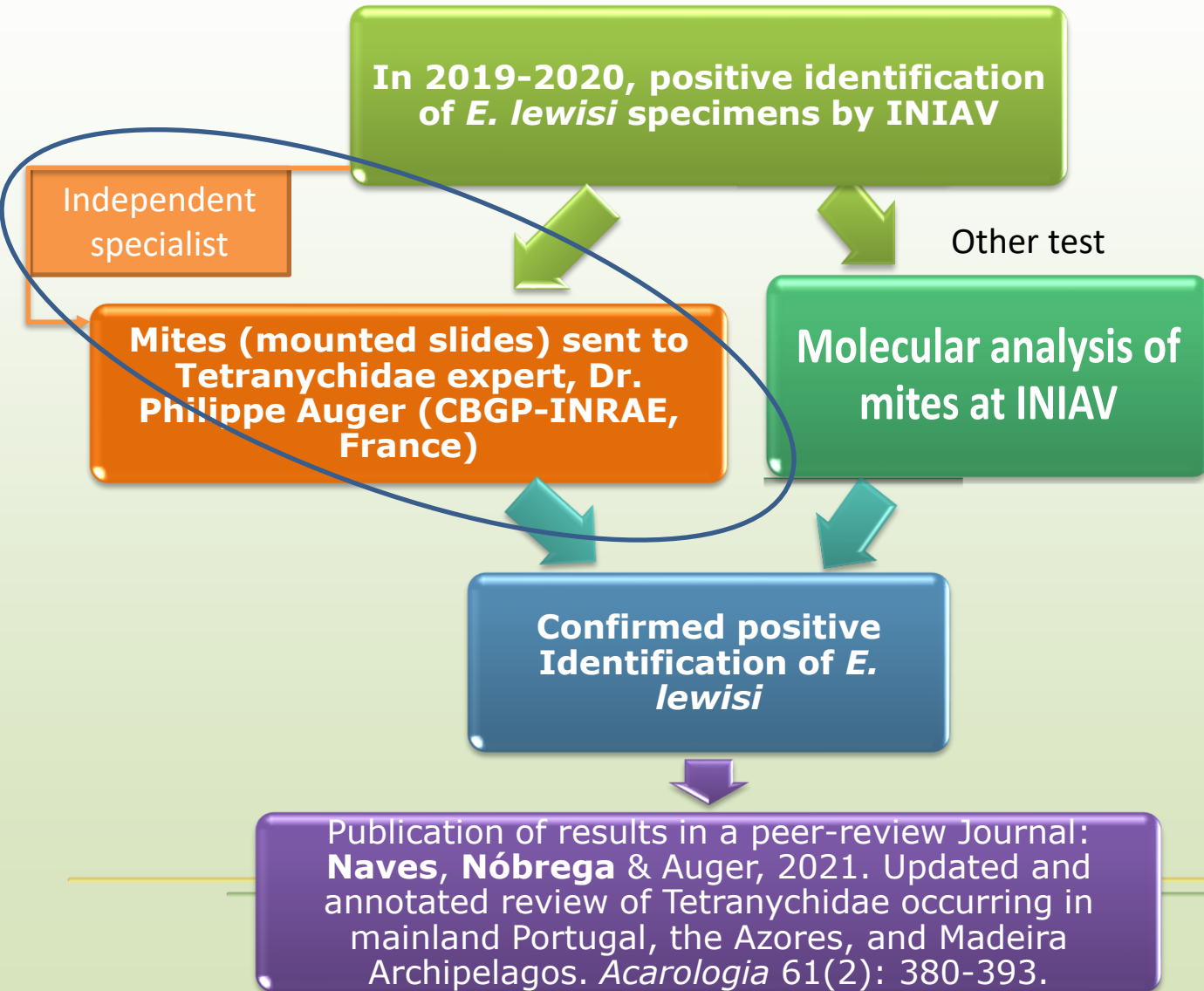


Every year, mite samples sent by the NPPO (DGAV) to INIAV within the national survey plan (since 2017)

Mites mounted and identified at INIAV Acarological Lab

All samples negative until...

Competence assessment (Validation procedure)



Acarologia

Open Science
in Acarology

Updated and annotated review of Tetranychidae occurring in mainland Portugal, the Azores, and Madeira Archipelagos

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^b GREEN-IT Bioresources for Sustainability, ITQB NOVA, Portugal.

^c CBGP, INRAE, CIRAD, IRD, Montpellier SupAgro, Univ Montpellier, Montpellier, France.

Original research

Quality control: During validation no positive control (**voucher specimen**) was used. Identification was based on observation of distinctive morphological characters, using **published keys (validated tests)**, experienced operators, confirmation by an expert from an external laboratory (**independent specialist**) and molecular analysis (**other test**). The slide-mounted specimens in the INIAV acarological collection are positive controls for future identification.

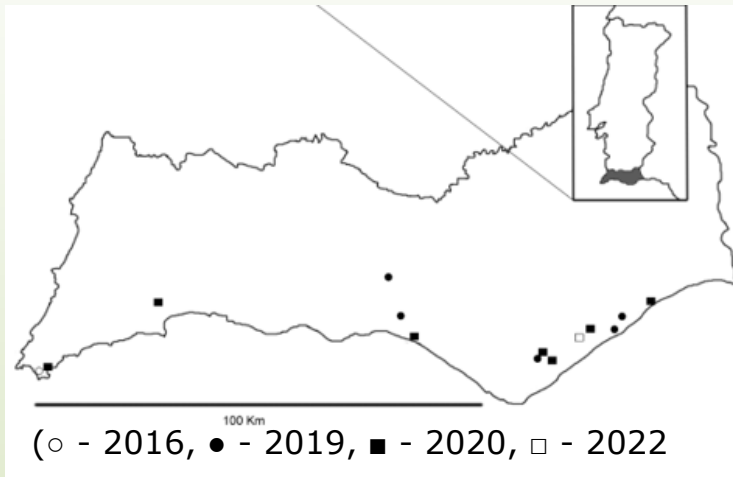
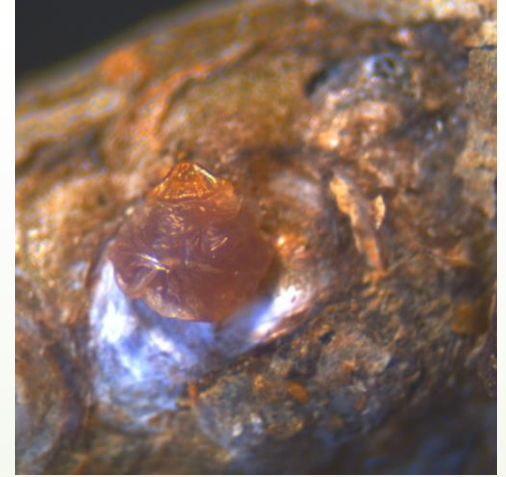
Reproducibility: in the subsequent years positive and negative samples have been sent for molecular analysis, confirming in 100% of the cases the results of the classic morphological identification.

II. *Melanaspis corticosa* (Plant Health services in any pest)

a new scale insect pest of olive trees in Europe

In 2016, new damage symptoms were observed on branches of ornamental olive trees in an urban area, in the Algarve, Portugal.

The pest spread during the following years.



Competence assessment (Validation procedure)

2016-2022, new scale insect

Morphological identification done on adult females:
Descriptions, illustrations and keys (validated methods)

Independent specialist

Specimens sent to Dr. Gaetanea Mazzeo, Univ. Catania, Italy

Confirmed positive
Identification of *M. corticosa*

Generated *COI* sequences
(acc. no. OP442082 up to OP442087)
for future identification by means of
DNA barcoding

Publication of results in a peer-review Journal:
Mazzeo G., Pellizzari G., **Mateus C.**, Silva E.B., Russo A, Nucifora S., Soares C., Tomé C., **de Andrade E.**, Franco J.C (2023) *Melanaspis corticosa*: a new insect pest of olive trees in Europe *Phytoparasitica* 51: 153-162

III. Comparative testing

The structure of the Plant Health Laboratory of INIAV - NRL

Plant Health specialities

Molecular disciplines

- **Lab of Acarology**

Responsible: Pedro Naves

- **Lab of Entomology**

Responsible : Edmundo Sousa

- **Lab of Fitobacteriology**

Responsible : Leonor Cruz

- **Lab of Fitovirology and e Fitoplasmolog**

Responsible: Esmeraldina Sousa

- **Lab of Mycology**

Responsible : Helena Bragança

- **Lab of Nematology**

Responsible : Lurdes Inácio

- **Lab of Weed Science**

Responsible : Isabel Calha

- **Lab of Biochemistry**

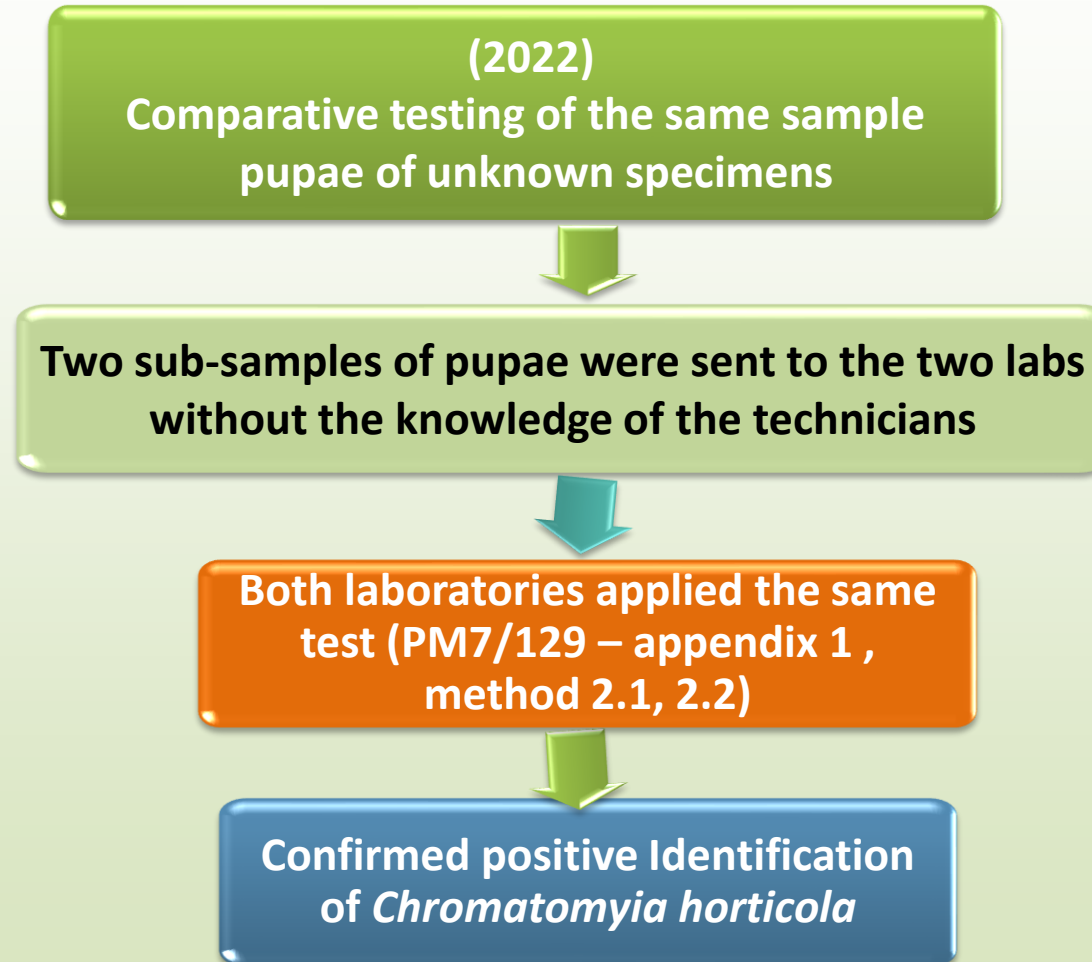
Responsible : Filomena Nóbrega

- **Lab of GMO**

Responsible : Eugénia de Andrade

Competence assessment (Validation)

Intralaboratory comparison by evaluation of tests on the same items, in two different laboratories



Thank you!