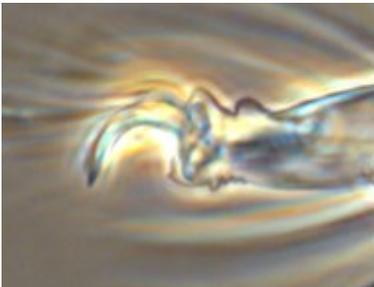
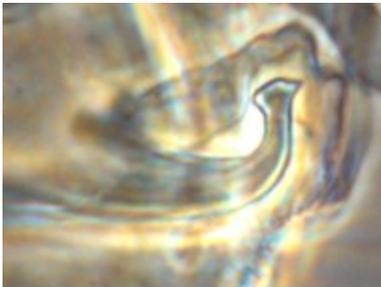




National Plant Protection Organization, the Netherlands

Quick scan number: QS.Ent.2017.007

Quick scan date: 13 December 2017		
1	<p>What is the scientific name (if possible up to species level + author, also include (sub)family and order) and English/common name of the organism? <i>Add picture of organism/damage if available and publication allowed.</i></p>	<p><i>Tetranychus lombardinii</i> Baker &amp; Pritchard, 1960 Acari: Prostigmata: Tetranychidae (spider mites) Vernacular name: Crimson spider mite; Karmosynspinmyt; southern lobed mite EPPO code: TETRLO</p>    <p>Male, body Male, empodium I Male, aedeagus All photo's © NVWA</p>
2	<p>What prompted this quick scan? <i>Organism detected in produce for import, export, in cultivation, nature, mentioned in publications, e.g. EPPO alert list, etc.</i></p>	<p>Interception on fruit of <i>Solanum melongena</i> (vegetable, egg-plant) from South Africa on August 23, 2017.</p>

3	What is the current area of distribution?	<i>Tetranychus lombardinii</i> has a wide range of distribution (Migeon & Dorkeld 2017): originally Afrotropical, south of the Sahara (Benin, Congo (DRC), Kenya, Madagascar, Malawi, Mozambique, Namibia, South Africa, Zambia, Zimbabwe) (Smith-Meyer, 1974), later also Oriental (India - Gupta & Gupta 1994; Indonesia - Gutierrez & Schicha 1983), Australasian (Australia) (Gutierrez & Schicha 1983) and Neotropical (Saint-Martin, France) - Flechtmann et al. 1999). The species occurs predominantly in subtropical, tropical areas (Smith-Meyer 1981, Smith-Meyer et al. 1996). It has only once been recorded in Australia: New South Wales, from <i>Passiflora</i> in 1976 (Gutierrez & Schicha 1983), suggesting it is not important or it is frequently confused with other species (Seeman & Beard 2011).
4	What are the host plants?	<i>Tetranychus lombardinii</i> is a highly polyphagous species and attacks a variety of plant species: host plants are known from more than 120 wild and cultivated plant species in 41 plant families (Smith-Meyer 1974; Gupta & Gupta 1994; Vacante 2016; Migeon & Dorkeld 2017) in particular Fabaceae and Solanaceae. Some of these are important agricultural crops such as <i>Arachis hypogaea</i> (peanut), <i>Cajanus cajan</i> (pigeon pea), <i>Carica papaya</i> , <i>Chrysanthemum</i> , <i>Citrullus lanatus</i> (watermelon), <i>Cucurbita maxima</i> (squash), <i>Datura stramonium</i> , <i>Ficus carica</i> (fig), <i>Gerbera jamesonii</i> , <i>Glycine max</i> (soybean), <i>Gossypium</i> sp. (cotton), <i>Hibiscus</i> sp., <i>Lactuca sativa</i> (lettuce), <i>Manihot esculenta</i> (cassava), <i>Medicago sativa</i> (alfalfa), <i>Musa</i> (banana), <i>Passiflora</i> , <i>Pelargonium</i> , <i>Phaseolus vulgaris</i> (bean), <i>Populus</i> , <i>Ricinus communis</i> (castorbean), <i>Solanum lycopersicum</i> (tomato), <i>Solanum tuberosum</i> (potato) and <i>Spinacia oleracea</i> (spinach).
5	Does the organism cause any kind of plant damage in the current area of distribution and/or does the consignment demonstrate damage suspected to have been caused by this organism? <i>Yes/no + plant species on which damage has been reported + short description of symptoms. Please indicate also when the organism is otherwise harmful (e.g. predator, human/veterinary pathogen vector, etc.).</i>	Yes, damage of <i>Tetranychus lombardinii</i> is similar to that of the red spider mite <i>T. cinnabarinus</i> Boisduval (Smith-Meyer, 1981). In South-Africa it is an important pest of many agricultural crops (Smith-Meyer 1974). It is the most important spider mite species on banana and a serious pest on cotton, papaya and tomato outdoors (Smith-Meyer 1981; Smith-Meyer et al. 1996). On banana feeding causes the fruits to take on a stippled silver appearance, heavily infested fruits become smoky yellow when they ripen (Smith-Meyer 1981). Damage of <i>T. lombardinii</i> of different cotton varieties has been reported from South-Africa and Zimbabwe (Botha et al. 1989; Brettell & al. 1985).

6	<p>Assess the probability of establishment in the Netherlands (NL) (i.e. the suitability of the environment for establishment).</p> <ol style="list-style-type: none"> <li>In greenhouses (low, medium, high)</li> <li>Outdoors (low, medium, high)</li> <li>Otherwise (e.g. storage facilities, human environment)</li> </ol>	<p>a. medium: no reports of occurrence in greenhouses could be found, but many of the hosts are commonly grown greenhouse plants.</p> <p>b. low: does not thrive in a temperate climate.</p> <p>c. not relevant.</p> <p>Like <i>T. cinnabarinus</i>, <i>T. lombardinii</i> prefers dry, warm conditions. It can withstand temperature between 40 and 45 °C, but does not survive frost (-3.8°C) (Smith-Meyer et al. 1996).</p>
7	<p>Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).</p>	<p>In southern Europe many hosts are present and the climate is probably suitable (establishment is likely).</p>
8	<p>What are the possible pathways that can contribute to spread of the organism after introduction? How rapid is the organism expected to spread (by natural dispersal and human activity)?</p>	<p>On their own strength spider mites crawl over short distances. Over long distances dispersal by wind plays an important role. Mites form a silk thread so that the wind can carry them (Smith-Meyer et al., 1996). Movement and trade of plants and plant products can facilitate spread both over smaller and longer distances.</p>
9	<p>Provide an assessment of the type and amount of direct and indirect damage (e.g. lower quality, lower production, export restrictions, threat to biodiversity, etc.) likely to occur if the organism would become established in NL and the EU, respectively?</p>	<p><u>Direct impact</u></p> <p>In NL the very common two-spotted spider mite (<i>Tetranychus urticae</i> Koch) has a comparably broad host range and is well adapted to the greenhouse environment. Additional direct damage by <i>T. lombardinii</i> may, therefore, be limited. Crop species may, however be present that are attractive for <i>T. lombardinii</i> but not for <i>T. urticae</i>.</p> <p>In southern Europe, the mite can possibly cause additional and significant damage to various crops such as banana and cotton.</p> <p><u>Impact for export</u></p> <p>Countries, which are free from this pest can demand restrictions for the export from the EU. The species is noted as a quarantine pest in Thailand (Sutabutra 2007) and New Zealand (MAF 2000).</p>
10	<p>Has the organism been detected on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables)?</p>	<p>Yes</p>

	If "no", go to question 12	
11	If the organism has been found on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables), what is the probability of introduction (entry + establishment)? <i>Only to be answered in case of an interception or a find.</i>	The probability of transfer from fruit is assessed to be low because of the low natural dispersal potential of the mite species (see also EPPO, 2007). Spider mites are exclusively and obligate phytophagous and cannot survive without feeding on host plants.
12	Additional remarks	Spider mites are omnipresent on many agricultural and horticultural crops. Pathways are numerous and obscure and detection is difficult: males are obligatory for species identification.
13	References	<p>Baker EW &amp; Pritchard AE (1960) The tetranychoid mites of Africa. <i>Hilgardia</i>, 29: 455 - 574.</p> <p>Botha JH, Greeff AI &amp; Scholtz AJ (1989) Preliminary screening of cotton plants for resistance to spider mite damage in South Africa. <i>Phytophylactica</i>, 21(4):379-383</p> <p>Brettell JH, Musuna ACZ &amp; Jowah P (1985) Entomology. Annual Report 1983-84, Cotton Research Institute, Zimbabwe: 121-186, 194, 195.</p> <p>EPPO (2007) PRA record <i>Tetranychus evansi</i>. <a href="https://gd.eppo.int/taxon/TETREV/documents">https://gd.eppo.int/taxon/TETREV/documents</a> (accessed 23 October 2017).</p> <p>Flechtmann CHW, Kreiter S, Etienne J &amp; de Moraes GJ (1999). Plant mites (Acari) of the French Antilles. 1. Tetranychoida (Prostigmata). <i>Acarologia</i>, 40: 137-144.</p> <p>Gupta YN &amp; Gupta SK (1994) A taxonomic review of Indian Tetranychidae (Acari: Prostigmata) with descriptions of new species, redescription of known species and keys to genera and species. <i>Memoirs of the Zoological Survey of India</i>, 18(1)1-196. Accessed October 16, 2017, available at URL <a href="http://faunaofindia.nic.in/PDFVolumes/memoirs/018/01/0001-0196.pdf">http://faunaofindia.nic.in/PDFVolumes/memoirs/018/01/0001-0196.pdf</a> <a href="http://faunaofindia.nic.in/PDFVolumes/memoirs/018/01/index.pdf">http://faunaofindia.nic.in/PDFVolumes/memoirs/018/01/index.pdf</a></p> <p>Gutierrez J &amp; Schicha E (1983) The spider mite family Tetranychidae (Acari) in New South Wales. <i>International Journal of Acarology</i>, 9(3) 99-116.</p> <p>MAF (2000) IHS Fresh Fruit/Vegetables. Cucumber, <i>Cucumis sativus</i> from Australia (Biosecurity Act 1993) 16pp. <a href="https://www.mpi.govt.nz/dmsdocument/1736-cucumber-cucumis-sativus-from-">https://www.mpi.govt.nz/dmsdocument/1736-cucumber-cucumis-sativus-from-</a></p>

		<p>australia-fresh-fruitvegetables-import-health-standard.</p> <p>Migeon A &amp; Dorkeld F (2017) Spider Mites Web: a comprehensive database for the Tetranychidae. Accessed October 16, 2017, available at URL <a href="http://www.montpellier.inra.fr/CBGP/spmweb">http://www.montpellier.inra.fr/CBGP/spmweb</a>.</p> <p>Seeman OD &amp; Beard JJ (2011) Identification of exotic pest and Australian native and naturalised species of <i>Tetranychus</i> (Acari: Tetranychidae). <i>Zootaxa</i>, 2961: 1–72.</p> <p>Smith-Meyer MKP (1974) A revision of the Tetranychidae of Africa (Acari) with a key to the genera of the world. Republic of South Africa, Department of Agricultural Technical Services. Entomology Memoir 36: 291 pp.</p> <p>Smith-Meyer MKP (1981) Mite pests of crops in southern Africa. Science Bulletin, Department of Agriculture and Fisheries, Republic of South Africa, 397: 92 pp.</p> <p>Smith Meyer MKP, Schoeman AS &amp; Ueckermann EA (1996) Mite pests and their predators on cultivated plants in southern Africa: vegetables and berries. Plant Protection Research Institute handbook, no. 6. Pretoria, South Africa 90 pp.</p> <p>Sutabutra T (2007) Notification of Ministry of Agriculture and Cooperatives Re : Specification of plant pests as prohibited articles under the Plant Quarantine Act B.E. 2507 (No. 7) B.E. 2550. G/SPS/N/THAJ159, 1-19. Accessed October 16, 2017, available at URL <a href="http://pflanzengesundheit.jki.bund.de/dokumente/upload/e0994_th3-2007-06qso-6-2550.pdf">http://pflanzengesundheit.jki.bund.de/dokumente/upload/e0994_th3-2007-06qso-6-2550.pdf</a></p> <p>Vacante V (2016) The Handbook of Mites of Economic Plants: Identification, Bio-ecology and Control, CAB International, Wallingford, Oxfordshire, xvii + 890 Pages.</p>
14	<b>Conclusions</b>	This Quick scan was initiated after the interception of the spider mite <i>Tetranychus lombardinii</i> on fruit of <i>Solanum melongena</i> from South Africa. The species is known as a pest of various crop plants and may be able to establish in parts of the European Union. The probability of introduction of the species via import of fruit is assessed to be low.
15	<b>Follow-up measures</b>	No official measures.