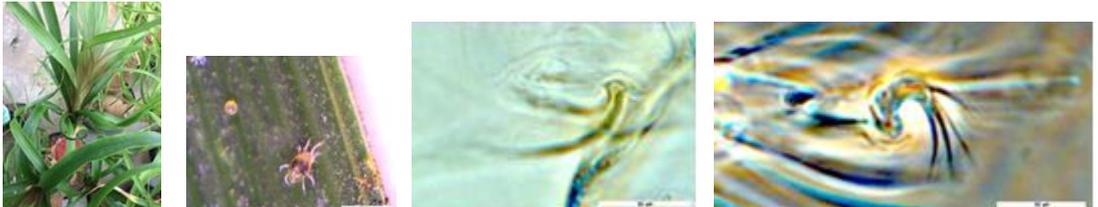




Netherlands Food and Consumer
Product Safety Authority
Ministry of Economic Affairs

National Plant Protection Organization, the Netherlands

Quick scan number: QS-ENT-2018-007

Quick scan date: 19 October 2018		
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 mexicanus</i> (McGregor 1950) Acari, Prostigmata, Tetranychidae (spider mites)</p>  <p>From left to right: attacked <i>Beaucarnea</i> plant, female with egg on leaf, male aedeagus and empodial claw of female tarsus I. (© 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>On 8 October 2018 (PRISMA 3356811) a greenhouse find in the province of Noord-Brabant on heavily infested pot plants of <i>Beaucarnea</i>, which had originally been imported from Central America.</p>
3	<p>What is the current area of distribution?</p>	<p>Broadly neotropical distribution, from Argentina to Mexico. Recorded in 1994 from Hainan, China, but this record has not been confirmed (Anonymous 1980; Cheng 1994, Migeon & Dorkeld 2018).</p>
4	<p>What are the host plants?</p>	<p>About 100 species, belonging to 44 plant families have been recorded (Migeon & Dorkeld 2018). The find on <i>Beaucarnea</i> adds a new plant family (Asparagaceae).</p>

5	<p>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.</i> <i>Please indicate also when the organism is otherwise harmful (e.g. predator, human/veterinary pathogen vector, etc.).</i></p>	<p>Bleaching of the green leaves of the <i>Beaucarnea</i> pot plants was caused by emptying cells by the spider mite. Ornamental plants with bleached leaves are of less commercial value compared to healthy plants. On <i>Beaucarnea</i> a spider mite was reported only once before (<i>Schizotetranychus undulatus</i> - Beer & Lang 1958); even very polyphagous and worldwide occurring <i>Tetranychus</i> spp., such as <i>T. urticae</i>, have not been recorded from this plant genus.</p> <p>In Brazil economic damage caused by <i>T. mexicanus</i> has been reported on soursop (<i>Annona muricata</i>) and other <i>Annona</i> spp. (Paschoal 1968, Sousa & al. 2010). Several forest trees were damaged in the State of São Paulo (Demite & al. 2016). In the north-eastern part of Brazil, sweet orange (<i>Citrus x sinensis</i>) is attacked dependent on the cultivar (Silva & al., 2016, 2017). In southern Brazil, the following symptoms were observed on <i>Citrus</i>: chlorotic spots on the leaves, shoots' death and leaves and fruits fall (Chiaradia & al. 2009).</p> <p>In Venezuela the mite is an important pest in 60 commercial passion fruit (<i>Passiflora edulis</i>) plantations (Gil 1998). It is a less important pest on <i>Citrus latifolia</i> on which it causes damage to the undersides of lower, old leaves, although it may also attack young leaves (Quiros-Gonzalez 2000).</p> <p>On Cuba, together with a <i>Rhizoglyphus</i> mite, <i>T. mexicanus</i> is the most significant mite pest in cocoa cultivation (<i>Theobroma cacao</i>) (Suarez 1991).</p>
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"> In greenhouses (low, medium, high) Outdoors (low, medium, high) Otherwise (e.g. storage facilities, human environment) 	<ol style="list-style-type: none"> medium; no reports in a greenhouse environment have been found. However it may be able to establish in heated glasshouses (high uncertainty). low; only known to occur in subtropical and tropical regions low; like all spider mites it is exclusively a plant feeder.
7	<p>Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).</p>	<p>Establishment in southern EU may be possible see also under 9.</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>For natural spread these <i>Tetranychus</i> mites are mainly transported with their webs by wind. <i>T. mexicanus</i> is larger and seems more active than the <i>Tetranychus</i> species currently present in the Netherlands. However, due to their relatively small size they can be easily spread on plants moving in trade.</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</p>	<p><i>T. mexicanus</i> seems a potential glasshouse pest for Europe as the <i>Beaucarnea</i> pot plants on which the pest was detected in the Dutch glasshouse were heavily infested. At the moment, it is, however, highly uncertain how serious the pest could be in glasshouse crops because of lack of information on</p>

	biodiversity, etc.) likely to occur if the organism would become established in NL and the EU, respectively?	<p>the ease of control (in integrated pest management systems) and how well it can maintain itself in a commercial glasshouses throughout the year.</p> <p><i>T. mexicanus</i> is known to be present in southern Brazil and in the Tucuman Province of Argentina which implies that it can also establish in sub-tropical regions (Herrero 1985, Chiaradia & al. 2009). From Argentina no reports on damage have been found but it is a known pest on <i>Citrus</i> in southern Brazil (Chiaradia & al. 2009). The climate in its current area distribution seems (mainly) humid (sub)tropical. However, spider mites generally thrive well under dry conditions and, therefore, the Mediterranean area (dry warm summers) may be suitable for establishment and the species seems a potential pest for <i>Citrus</i> and possibly other crops in southern parts of the EU.</p> <p>Establishment in Europe may affect export to certain regions in the world as it is a quarantine pest in several countries including Taiwan and Japan (BAPHIQ 2018; MAFF 2015).</p>
10	Has the organism been detected on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables)? <i>If "no", go to question 12</i>	No
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>	
12	Additional remarks	
13	References	<p>Anonymous, 1980. A tetranychid mite (<i>Tetranychus mexicanus</i> (McGregor)) - Florida - new United States record. <i>Cooperative Plant Pest Report</i> 5(1):11.</p> <p>Beer RE & Lang DS 1958. The Tetranychidae of Mexico. <i>University of Kansas Scientific Bulletin</i> 38: 1231-1259.</p> <p>BAPHIQ 2018. Quarantine Requirements for The Importation of Plants or Plant Products into The Republic of China. https://www.baphiq.gov.tw/files/web_articles_files/baphiq/11712/18852.pdf [accessed 12 October 2018]</p> <p>Cheng LS. 1994. A new record of Chinese Tetranychidae [in Chinese]. <i>Zoological Research</i> 15: 20. file:///R:/LITERATUUR/Acari/Prostigmata/Tetranychidae/Tetranychus/Cheng_1994_Tetranychus%20mexicanus.pdf [accessed 12 October 2018]</p> <p>Chiaradia LA, Milanez JM & Nesi CN 2009. Influencia de fatores climaticos e de acaros predadores na</p>

		<p>populacao de acaros tetranychideos em citros. <i>Agropecuaria Catarinense</i> 22(2):50-54.</p> <p>Demite PR, Flechtmann CHW & Feres RFJ 2016. Tetranychidae (Acari) in forest fragments in the State of São Paulo, Brazil. <i>Acarologia</i> 56(4): 435-449.</p> <p>Gil OED, 1998. Phytophagous fauna of passion fruit (<i>Passiflora edulis</i> f. <i>flavicarpa</i>) in the eastern and southeastern regions of the Lake Maracaibo Basin, Venezuela: Plant damage and economic importance. <i>Boletin del Centro de Investigaciones Biologicas Universidad del Zulia</i> 32(2): 79-106.</p> <p>Herrero AJ de, 1985. <i>Phytoseiulus macropilis</i> (Banks) (Acarina-Phytoseiidae) un nuevo acaro benefico para los citricos de Tucuman. <i>Revista de Investigacion CIRPON</i> 2(1/2):27-35.</p> <p>MAFF 2015. Proposed revision of Quarantine Pest List (Annexed Table 1 of the Ordinance for Enforcement of the Plant Protection Act). http://www.maff.go.jp/j/syouan/keneki/kikaku/pdf/01_at1_qualant_pest_list.pdf [accessed 12 October 2018]</p> <p>Migeon A & Dorkeld F 2018. Spider Mites Web. A comprehensive database for the Tetranychidae. http://www.montpellier.inra.fr/CBGP/spmweb [accessed 12 October 2018]</p> <p>Paschoal AD 1968. Um acaro parasitica de plantas frutiferas: <i>Tetranychus mexicanus</i> (Acarina: Tetranychidae). <i>Solo</i> 60(2): 75-77.</p> <p>Quirós-González M 2000. Phytophagous mite populations on Tahiti lime, <i>Citrus latifolia</i>, under induced drought conditions. <i>Experimental and Applied Acarology</i> 24: 897-904.</p> <p>Silva RR da, Teodoro AV, Martins CR, Carvalho HWL de, Silva SS, Farias AP & Guzzo EC 2017. Seasonal variation of pest mite populations in relation to citrus scion cultivars in northeastern Brazil. <i>Acta Agronomica, Universidad Nacional de Colombia</i> 66(2): 290-295.</p> <p>Silva RR da, Teodoro AV, Vasconcelos JF, Martins CR, Soares Filho, W dos S, Carvalho HWL de & Guzzo EC 2016. Citrus rootstocks influence the population densities of pest mites. <i>Ciencia Rural</i> 46(1):1-6.</p> <p>Sousa JM de, Gondim MGC Jr & Lofego AC, 2010. Biologia de <i>Tetranychus mexicanus</i> (McGregor) (Acari: Tetranychidae) em tres especies de Annonaceae. <i>Neotropical Entomology</i> 39(3): 319-323.</p> <p>Suarez A 1991. Acaros detectados sobre el cultivo del cacaotero (<i>Theobroma cacao</i>) en la provincia de Guantanamo. <i>Proteccion de Plantas</i> 1(1): 59-65.</p>
14	Conclusions	<p><i>Tetranychus mexicanus</i> has been observed for the first time in Europe on <i>Beaucarnea</i> plants in a commercial glasshouse in the Netherlands. The plants had been imported from Central America. The species is known to be present in South and Central America and the Caribbean where it is known as a pest on various crops in different countries. The species seems a potential pest for glasshouse crops for the entire EU and a potential pest for outdoor crops, including <i>Citrus</i>, in southern EU member states.</p>
15	Follow-up measures	<p>Official measure to eradicate <i>Tetranychus mexicanus</i> from the glasshouse.</p>