Netherlands Food and Consumer Product Safety Authority
Ministry of Economic Affairs

National Plant Protection Organization, the Netherlands

Quick scan number: QS. Ent.2014.11

	Quick scan date: 17th October 2014	
1	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? *Add picture of organism/damage if available and publication allowed*.	*Thrips setosus* Moulton, 1928 Thysanoptera: Thripidae Japanese flower thrips 
2	What prompted this quick scan? *Organism detected in produce for import, export, in cultivation, nature, mentioned in publications, e.g. EPPO alert list, etc.*	On September 30, 2014, detection of *T. setosus* in a nursery on *Hydrangea* pot plants in a greenhouse in the Netherlands.
3	What is the current area of distribution?	Japan and South-Korea (Woo 1988; Palmer 1992)
4	What are the host plants?	Polyphagous, especially on herbs: cucumber (*Cucurbita)*, eggplant (*Solanum melongena*) tobacco (*Tabacum indicum*), tomato (*Solanum lycopersicum*), pepper (*Capsicum annuum*), *Chrysanthemum morifolium, Dahlia, Hippeastrum, Tagetes* (Anonymous 1980). Many other crops and weeds have been recorded (e.g. Miyazaki & Kudo 1988; Mizobuchi et al. 1991).

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? *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.).*	*Thrips setosus* does not feed on pollen (Murai 2001a) and for this reason it cannot be regarded as a 'flower thrips'. Quantitative data on yield reduction are not known. Its influence on fruit setting is negligible. It is a typical leaf feeder, which can transmit TSWV (Tomato Spotted Wilt Virus) within field crops, but also between weeds and cultivated field crops. Kobatake (1984) describes heavy TSWV infestation in July 1977 and 1978 in a tomato field caused by *T. setosus*. The thrips transmitted the virus from the weeds *Sonchus oleraceus* and *Crepis japonica* to tomato and within the tomato crop. Control of the thrips decreased the virus incidence. Worldwide, *T. setosus* is one of the ten species of thrips known to be able to transmit TSWV (EFSA 2012). In the Dutch nursery, typical thrips feeding damage (silvery spots, with dark punctures) on leaves was observed on the *Hydrangea* plants. In Japan, *T. setosus* is regarded as a minor pest (Murai, 2001b).
6	Assess the probability of establishment in the Netherlands (NL) (i.e. the suitability of the environment for establishment). a. In greenhouses (low, medium, high) b. Outdoors (low, medium, high) c. Otherwise (e.g. storage facilities, human environment)	a. Infestations in greenhouses have not been reported, but in Japan *Thrips setosus* has the potential to be a pest thrips on vegetables in greenhouses because of its ecological performance (Murai 2001a). In the Netherlands, it was found in a greenhouse and on outdoor plants. This observation suggests that the pest can establish in greenhouses, and therefore the probability of establishment is rated high with a medium uncertainty. b. In Japan, the geographical distribution of the thrips reaches the northern part of Hokkaido. Probably due to its reproductive diapause, it can survive cold winters (Nakao 1998). Several known host plants in Japan occur in the open in the Netherlands (*Impatiens balsamina*, *Lactuca sativa*, *Sonchus oleraceus*, *Mentha arvensis*, *Trifolium repens*, *Datura stramonium*, *Vitis vinifera*) (Miyazaki & Kudo 1988). Thus, the climate seems suitable for establishment and various host plants are present outdoors. The probability of establishment outdoors is rated high. c. No reports otherwise (low probability).
7	Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).	High, see under 6b.
8	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)?	Despite its wide geographical distribution in Japan and its wide host range, interceptions on import material originating from Japan (or Korea) are very scarce. In the 1970s, an interception was reported on cut flowers of *Dianthus* from Japan in the USA (Anonymous 1979). In the beginning of the 1980s, another interception was reported from the USA: "*Rosa* (flower), import Brasil (?) Japan" (Anonymous 1982). In 2006/2007, *T. setosus* was found during a field suvey on *Hymenocallis* in Singapore (Anonymous 2007), but this record needs verification. Little is known, therefore, about the pathways. Potential pathways are infested leaf material and stems of host plants (e.g. cuttings, cut flowers, rooted plants etc.).
9	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	*Thrips setosus* is considered a minor pest in Japan (Murai 2001b). However, this may partly be due to intensive control measures against other pests, e.g. *Thrips palmi*. It is uncertain how well the species will be controlled under current management practices in the Netherlands and other EU member states. The infestation level observed on the *Hydrangea* plants in the Dutch greenhouse was

	would become established in NL and the EU, respectively?	significant. *T. setosus* is known as a vector of TSWV. In greenhouses in the Netherlands, *Frankliniella occidentalis* is a common thrips species and has the highest transmission efficiency among Thripidae (EFSA 2012). Therefore, *T. setosus* may not be a great threat for greenhouse crops that are already attractive to *F. occidentalis.* However, some crops that currently do not suffer much from *F. occidentalis* may be attractive to *T. setosus*. Outdoors, *T. setosus* may lead or contribute to spread of TSWV depending on the presence of vector species already present in the EU. Introduction of *T. setosus* may also have consequences for export because it is currently present in only a limited number of countries in the world.
10	Has the organism been detected on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables)? *If "no", go to question 12*	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)? *Only to be answered in case of an interception or a find.*	
12	Additional remarks	
13	References	• Anonymous 1979. List of intercepted plant pests (pests recorded from July 1, 1973 trough september 30, 1977). Animal and Plant Health Inspection Service 82-5. United States Department of Agriculture, Hyattsville, MD, USA. • Anonymous 1980. Major and other pests of economic plants in Japan. Japan Plant Protection Association. Tokyo, Japan. i-xvi. 1-307. • Anonymous 1982. List of intercepted plant pests. Fiscal years 1980 and 1981. Animal and Plant Health Inspection Service. Plant Protection and Quarantine. United States Department of Agriculture 82-8, USA. • Anonymous 2007. FY 2006/07. Annual Report. Goin the extra mile. Agri-Food & Veterinary Authority of Singapore. Government of Singapore, Singapore. http://www.ava.gov.sg/NR/rdonlyres/0676D1EB-C401-4038-9D8D-84A01B52DD27/11900/AVA07_CorporateReview.pdf [accessed 10-10-2014] • EFSA 2012. Scientific Opinion on the pest categorisation of the tospoviruses1 EFSA Journal 2012;10(7):2772 http://www.efsa.europa.eu/en/efsajournal/doc/2772.pdf [accessed 7-10-2014] • Kobatake, M 1984. Ecology and control of spotted wilt disease of tomato in Nara Prefecture. Proceedings of the Kansai Plant Protection Society 26: 23-28. [Japanese] • Miyazaki, M & Kudo, I 1988. Bibliography and host plant catalogue of Thysanoptera of Japan. National Institute of Agro-Environmental Sciences. Miscellaneous Publication 3: 1-246.

		• Mizobuchi, M; Fujiwara, Y; Kobayashi, K & Ikawa, Y 1991. Notes on thrips (Thysanoptera) collected in and around ports of Kobe, Himeji, Uno and Hirao. Research Bulletin of plant Protection of Japan 27: 115-127. [in Japanese] • Murai, T 2001a. Life history study of *Thrips setosus*. Entomologia Experimentalis et Applicata 100: 245-251. • Murai, T 2001b. The pest and vector from the East: *Thrips palmi*. In R. Marullo, & L.A. Mound, eds Thrips and Tospoviruses: Proceedings of the 7th International Symposium on Thysanoptera. Italy, 2–7 July 2001, pp. 19–32. Canberra, Australian National Insect Collection. http://www.ento.csiro.au/thysanoptera/Symposium/Section1/2-Murai.pdf [accessed 14-10-2014] • Nakao, S 1998. Effects of photoperiod and temperature on induction and termination of reproductive diapause of *Thrips setosus* Moulton (Thysanoptera: Thripidae). Japanese Journal of Applied Entomology and Zoology 42: 172-173. [in Japanese] Palmer, J M 1992. Thrips (Thysanoptera) from Pakistan to the Pacific: a review. Bulletin of the British Museum of natural History (Entomology) 61: 1-76. • Woo, K S 1988. Thrips as crop pests in Korea. Acta Phytopathologica et Entomologica Hungarica 23: 369-372.
14	**Conclusions**	The present Quickscan was conducted after the finding of a new thrips species for Europe, *Thrips setosus*, in the Netherlands. The species originates in Eastern Asia. It is not known how the species entered the Netherlands and how long it had already been present before it was detected. The species is polyphagous and both outdoor and greenhouses conditions in the Netherlands are likely suitable for establishment. *T. setosus* has been described as a minor pest in Japan. The species may, however, cause significant damage on certain crops. The *Hydrangea* plants on which the species was found were for example heavily infested and the species can act as a vector of Tomato spotted wilt virus.
15	**Follow-up measures**	A survey will be conducted in the surroundings of the nursery to assess if the species has established in the Netherlands. A trace back survey will also be conducted to assess the origin of the infestation.