Netherlands Food and Consumer
Product Safety Authority
Ministry of Agriculture,
Nature and Food Quality

Quick scan National Plant Protection Organization, the Netherlands

Quick scan number: QS2020ENT009

Quick scan date: 04-12-2020

No.	Question	Quick scan answer for ***Resseliella citrifrugis***
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*.	*Resseliella citrifrugis* Zhang (Diptera: Cecidomyiidae). English : 'Citrus fruit midge' (EPPO, 2017; see remark)  Photo: Larva of *Resseliella citrifrugis* extruding from a pomelo peel, in the centre of necrotic circular spot. On the left other infected spots.

No.	Question	Quick scan answer for ***Resseliella citrifrugis***
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.*	November 2020, the Dutch NPPO intercepted a pomelo fruit (*Citrus maxima*) from China containing live gall midge larvae infesting the skin.
3.	What is the current area of distribution?	Thus far this midge is only known from the Chinese provinces Fujian, Hubei, Hunan, Guangdong, Guangxi, Guizhou, Jiangxi, Sichuan) (Huang et al., 2001; Lu, 2002; Wang et al., 1997; Wu et al., 1999; Xie et al., 2012; Yang, 2010).
4.	What are the host plants?	As far as known, the host plants are *Citrus maxima* (Lu, 2002; Wang et al., 1997; Wu et al., 1999; Yang, 2010) and *Citrus paradisi* (Huang et al., 2001). There is an uncertainty about the host status of other Citrus species (Grousset et al., 2016). This pest was listed in the alert list of the EU project "Strategies to develop effective, innovative and practical approaches to protect major European fruit crops from pests and pathogens" (DROPSA) for orange and mandarin fruit (Grousset et al., 2016).
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.).*	The DROPSA report (Grousset et al., 2016) states "In China, *R. citrifrugis* is an important pest of grapefruit and pomelo and is subject to control programmes. It causes serious fruit drop and can affect product yield and storage quality, with serious economic losses. Yield losses of 10-40 % or more reported. Fruit infestations of 10-70% have been reported in citrus orchards. The most damaging period is before the fruit harvest, but the pest can also cause damage afterwards or overwinter in the fruit. (USDA, 2014 citing other)." The sample received by the Dutch NPPO showed brown circular spots and exit holes on the skin (i.e. exocarp and mesocarp) (see #1). Larvae were found tunnelling and feeding in the white mesocarp which, as a result, turned dark brown. At such places, the fruit flesh itself also showed discolouration. *R. citrifrugis* is listed as a quarantine species for fresh Citrus fruit for the USA and Mexico (medium pest risk potential) and subject to official control measures (USDA, 2014; SAGARPA, 2014). In China this species is a 'regulated organism'. Several control measures are implemented (Huang et al., 2001; Lu, 2002; Wang et al., 1997; Wu et al., 1999; Yang, 2010), some of which are enforced by local PPO's.
6.	Assess the probability of establishment in the Netherlands (NL) (i.e. the suitability of the environment for establishment). a. In greenhouses b. Outdoors c. Otherwise (e.g. storage facilities, human environment)	The probability of establishment seems low because *Citrus* species are only locally present in commercial glasshouses and at consumer's places. It is unknown if *C. maxima* or *C. paradisi* are present. The outdoor climate seems unfavourable.

No.	Question	Quick scan answer for ***Resseliella citrifrugis***
7.	Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).	In Southern Europe, the climate is suitable for *Citrus* culture and most likely also for this gall midge. In the DROPSA report the species was categorized as 'pest with high economic importance and more likely to transfer' (Grousset et al., 2016).
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)?	The main pathway of spreading the organisms is probably by transport of infested fruits. The species may also be spread with movement of soil and plants for planting with fruit or soil (Grousset et al., 2016). Little is known about active dispersal distances of gall midges, but a small size is no guarantee for limited dispersal. For example, the pine needle gall midge (*Thecodiplosis japonensis*), a species of comparable body size to *Resseliella*, is capable of flying at maximum distances of 400 to ca. 650 m under controlled conditions (see Liu et al. 2020 and references therein). Passive dispersal by wind under field conditions may exceed these distances, but quantitative data is lacking.
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 would become established in NL and the EU, respectively?	Harmful for at least *Citrus maxima* and *C. paradisi* (See 5). If the pest were to become established in the EU, the USDA may request control measures against this gall midge when export of *Citrus* to the USA is requested (USDA, 2014).
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*	Yes, about 25 live full grown larvae were found in the skin of the fruit.
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.*	The pest may transfer from infested fruit or from waste containing the pest to the surroundings. A detailed assessment of the probability of transfer is not part of this Quickscan.
12.	Additional remarks	The EPPO Global database has adopted the English name 'Citrus fruit midge' for this pest species (EPPO, 2017). However, this name is similar to 'Citrus gall midge', which is a completely different species. Therefore, it is recommended not to use the trivial name for this pest to avoid confusions. *Citrus* culture is rather important in the EU and the DROPSA report considers this species as 'invasive' (uncertain). Moreover, the USDA, e.g., considers this species a threat to their *Citrus* crops. This was the 2nd interception of viable larvae within two years. This was likely a conservative estimate, as we have also suspect interceptions consisting of fruits likely infested by this species. Currently we know that this species at least occurs on pomelo and grapefruits. It is unknown however, whether there are other suitable citrus food plants of this species. Additionally, it seems

No.	Question	Quick scan answer for *Resseliella citrifrugis*
		likely that at least some varieties that are derived from pomelo and grapefruit are also susceptible to infestations by this gall midge species.
13.	References	EPPO (2017) *Resseliella citrifrugis*(RESSCI). Avialable at https://gd.eppo.int/taxon/RESSCI . (accessed March 3, 2018). Grousset F, Wistermann A, Steffen K, Petter F, Schrader G, Suffert M (2016) DROPSA Deliverable 1.3 Report for Oranges and Mandarins – Fruit pathway and Alert List. Available at https://www.eppo.int/QUARANTINE/Pest_Risk_Analysis/dropsa/4_orange_mandarin_report.pdf (accessed December 4, 2020) Huang JR, Zhou SW, Zhou ZG, Zhou SQ, Cheng J, Deng PF (2001) Morphology and bionomics of *Resseliella citrifrugis* Jian [in Chinese with abstract in English]. Journal of Hunan Agricultural University (Natural Sciences), 27(6): 445-448. Liu H, Duan C, Qi Y, Ren L, Wu H 2020. Movement behavior of the pine needle gall midge (Diptera: Cecidomyiidae). Journal of Insect Science, 32, 1–6. LU SJ (2002) The integrated control of citrus fruit midge [Chinese]. CAB Abstracts South China Fruits, 31(2): 21. SAGARPA (2014) Requisitos fitosanitarios para la importación de frutos frescos de cítricos (*Citrus reticulata, Citrus sinensis* y *Citrus Grandis*), originarios y procedentes de China. Available at https://members.wto.org/crnattachments/2014/sps/MEX/14_4799_00_s.pdf (accessed March 3, 2018) Tao Z (2005) Study on Occurrence and Controlling Technology of Jiangyong *Resseliella citrifrugis* Jiang. Dissertation, Hunan Agricultural University. Available at https://www.dissertationtopic.net/doc/977192, ccessed March 3, 2018). USDA (2014) Importation of Citrus spp. from China into the continental United States. A Qualitative, Pathway-Initiated Pest Risk Assessment. February 7, 2014. Wang BZ, Xiang PM, Hong Q, Liang SX, Liu NS (1997) Preliminary study on the occurrence regulation of *Resseliella citrifrugis* Jiang [Chinese]. CAB Abstracts South China Fruits, 26(5): 11-12. Wu XM, Liao LH, Xie SM (1999) The citrus fruit gall midge in pummelo orchards and its control [Chinese]. CAB Abstracts South China Fruits; 1999. 28(2):14-15.Xie JH, Chen CX, Zhong BL, Yao F (2012) New Citrus Pests in Southern Jiangxi - Preliminary Report on harmfulness of Midges. Biological Disaster Science, 35(2): 204-205. Available at http:// http://xuebao.jxau.edu.cn (accessed March 3, 2018) Yang SB (2010) Occurrence of *Resseliella citrifrugis* Jiang in Baise City and its control measures. [Chinese, CAB Abstract English]. Guangxi Agricultural Sciences, 41(9): 928-930.

14.	**Conclusions**	This Quickscan was prompted by the interception of *Resseliella citrifrugis* in pomelo fruit (*Citrus maxima*) from China. The organism is not known to be present in the EU. The organism can likely establish in southern EU member states. If the organism were to become established it is expected to have significant economic impacts on the production and possibly the export of *Citrus* fruit in the EU.
15.	**Follow-up measures**	The consignment was rejected