Express PRA[1] for *Myzus mumecola* – Occurrence –

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Initiation: Occurrence on apricot trees; outdoors in the Federal State Brandenburg

Express Pest Risk Analysis	***Myzus mumecola***		
Phytosanitary risk for Germany	**high** ☐	**medium** ☐	**low** ☒
Phytosanitary risk for EU MS	**high** ☐	**medium** ☐	**low** ☒
Certainty of assessment	**high** ☐	**medium** ☒	**low** ☐
Conclusion	The aphid *Myzus mumecola* is endemic to Asia and so far, it has not been detected in Germany. The first occurrence in the EU was in Italy, in 2016. So far, there are no further notifications from EU Member States and the aphid is listed neither in the Annexes of Regulation (EU) 2019/2072 nor by EPPO. *Myzus mumecola* infests plants of the genus *Prunus* and primarily is known as a pest on apricot *(Prunus armeniaca*). So far, the alternating hosts of the aphid are unknown. Due to appropriate climatic conditions, it is assumed that *M. mumecola* can establish outdoors in Germany. The establishment has to be expected mainly in Southern European Member States and did already happen in Italy. Due to its low damage potential for apricot and possibly for plum, *M. mumecola* poses a low phytosanitary risk for Germany and other EU-Member States. Based on this risk analysis, it is assumed that the pest can establish in Germany or another Member State. However, no significant damage is expected. Thus, *M. mumecola* is not classified as a quarantine pest, and Article 29 of Regulation (EU) 2016/2031 does not apply.		
Taxonomy[2)]	Class: Insecta; Order: Hemiptera; Family: Aphididae; Genus: *Myzus*; Species: *Myzus mumecola* Matsumura, 1917		
Common name	-		
Synonyms	*Macrosiphum mumecola* Matsumura, 1917, *Myzus umecola*		
Does a relevant earlier PRA exist?	Subsequent to the first detection of the aphid in Italy in 2016, a national PRA was prepared there. According to the national plant health organisation, *M. mumecola* does not		

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	pose any phytosanitary risk for Italy and no official measures are taken (EPPO, 2019). The according risk analysis was not available.
Biology	In spring, *Myzus mumecola* builds colonies on young shoots of the host plants by cloning the females. In Japan, the aphid develops winged forms after some generations that alternate to other previously unknown host plants. In autumn, winged aphids come back to their host plants and produce males and females for sexual reproduction. The eggs are very resistant. In Italy, natural antagonists like predatory insects, parasitoids and entomopathogenic fungi were observed. Similar to many other aphid species, the aphids seem to be guarded by ants (PANINI *et al.*, 2017).
Is the pest a vector?[3)]	*Myzus mumecola* can transmit the Plum Pox Virus (KIMURA *et al.*, 2016).
Is a vector needed?[4)]	No
Host plants	*Prunus mume* (Japanese apricot, Ume), *P. armeniaca* (apricot) (MIYAZAKI, 1971), *Prunus cornuta* (Himalayan bird cherry) (PANINI *et al.*, 2017), *Prunus domestica* (plum) (BARBAGALLO *et al.*, 2017)
Symptoms[5)]	Mainly in spring, the symptoms on apricots show on young shoots. The leaves curl and show colouring. Apparently, fruits do not seem to get infested (PANINI *et al.*, 2017). No information is available on symptoms on plum trees.
Presence of host plants in Germany[6)]	In 2017, apricots were cultivated on totally 226 hectares in fruit cultivation in Germany. The main cultivation regions are Rhineland Palatinate (83 ha), Baden-Württemberg (62 ha) and Saxony-Anhalt (32 ha) (DESTATIS, 2020). In 2017, plums for fruit production were cultivated on totally 4,089 hectares in Germany. The main part of the area is located in Baden-Württemberg (1782 ha), Rhineland Palatinate (884 ha), Bavaria (369 ha) and North-Rhine Westphalia (311 ha) (DESTATIS, 2020). In Germany, the previously known host plants are also distributed as ornamental and fruit plants in private gardens and public green spaces.

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Presence of host plants in the Member States[7)]	In the EU, apricots were cultivated on approx. 72,800 hectares in 2018. The main cultivation regions are in Spain (approx. 20,600 hectares), Italy (approx. 17,800 hectares) and France (approx. 12,300 hectares). Other countries in which apricots are grown with more than 1,000 hectares cultivation area are Greece, Hungary, Bulgaria, Romania and Czech Republic (FAO, 2019). In the FAO statistics, plums and blackthorn are listed together. In 2018, approx. 154,000 hectares of plums and blackthorn were cultivated in the EU. The main cultivation regions are in Romania (approx. 66,000 hectares), France (approx. 15,000 hectares), Spain (approx. 14,600. ha), Poland (approx. 13,100 hectares) and Italy (approx. 11,700 hectares) (FAO, 2019).
Known infested areas[8)]	Japan (MIYAZAKI, 1971), Taiwan, China, Russia (Eastern Siberia), India, Italy (since 2016) (PANINI *et al.*, 2017)
Pathways[9)]	Plants for planting (PANINI *et al.*, 2017)
Natural spread[10)]	For the host alternation, the aphids produce winged generations.
Establishment and spread to be expected in Germany[11)]	The known distribution area of *M. mumecola* comprises Eastern Siberia as well as tropical regions in India. Due to the climatic condition in Germany, currently, no limitation of the distribution has to be expected.
Establishment and spread to be expected in the Member States[12)]	The establishment in Italy happened already. It is assumed that the species can establish wherever host plants are available. Mainly conventional cultivation of apricot and possibly plum would be affected.
Known damage in infested areas[13)]	Occasionally, the species is classified as harmful (BARBAGALLO *et al.*, 2017). No information was found on damage to plum trees.
Delimitation of the endangered area in Germany	Appropriate host plants are available throughout Germany.
Damage to be expected in endangered area in Germany[14)]	No significant damage has to be expected in conventional fruit cultivation because of the use of pesticides. The fruits are not damaged and can be marketed without quality loss.

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	Minor damage has to be expected in ecological cultivation and in private gardens.
Damage to be expected in endangered area in the Member States[15)]	No significant damage has to be expected in conventional fruit cultivation because of the use of pesticides. The fruits are not damaged and can be marketed without quality loss. Minor damage has to be expected in ecological cultivation and in private gardens.
Control feasibility and measures[16)]	Common pesticides against aphids in fruit cultivation seem to be very effective (PANINI *et al.*, 2017). No information on resistance of *M. mumecola* against pesticides could be found. Natural antagonists like predatory insects, parasitoids and entomopathogenic fungi could be observed in Italy (PANINI *et al.*, 2017). Normally, natural antagonists against aphids on stone fruits appear relatively late in the crops and thus, they cannot prevent earlier damage (BARBAGALLO *et al.*, 2017).
Detection and diagnosis[17)]	The species can be distinguished from the common species, *Myzus persicae* by experts. A DNA-Barcoding-procedure is available for a reliable diagnosis (PANINI *et al.*, 2017).
Remarks	--
Literature	BARBAGALLO, S., G. E. M. COCUZZA, P. CRAVEDI, S. KOMAZAKI, 2017: IPM case studies: deciduous fruit tree aphids. In van Emden, Harrington (Hg.) 2017 – Aphids as crop pests, 632-642. DESTATIS, 2020: Anbaufläche, Bäume (Baumobstanbau): Bundesländer, Jahre, Obstarten. GENESIS-online Datenbank, Statistisches Bundesamt. https://www.destatis.de/DE/Home/_inhalt.html EPPO, 2019: EPPO Reporting Service. No. 10 Paris, 2019-10. https://gd.eppo.int/media/data/reporting/rs-2019-10-en.pdf (accessed on: 14-05-2020) FAO, 2019: FAOSTAT – Crops. http://www.fao.org/faostat/en/#data/QC (accessed on: 14-05-2020) KIMURA, K., T. USUGI, H. HOSHI, A. KATO, T. ONO, S. KOYANO, S.KOYANO, S. KAGIWADA, T. NISHIO, S. TSUDA, 2016: Surveys of

	viruliferous alate aphid of Plum pox virus in *Prunus mume* orchards in Japan. Plant Disease 100, 40–48. MIYAZAKI, M., 1971: A revision of the tribe Macrosiphini of Japan (Homoptera: Aphididae, Aphidinae). Insecta Matsumurana 34, 1–247. PANINI, M., G. M. COCUZZA, D. DRADI, O. CHIESA, E. MAZZONI, 2017: First report of *Myzus mumecola* (Matsumura, 1917) in Europe. EPPO Bulletin 47 (1), 107-110.

Explanation

[1] Compilation of the most important directly available information allowing a first preliminary estimation of the phytosanitary risk. This short assessment is necessary for the decision on a notification to EU and EPPO as well as the preparation of a complete risk analysis, for the information of the countries and as a basis for the possible initiation of eradication measures. Regarding the phytosanitary risk especially the possibility of the introduction into and spread in Germany and the Member States as well as possible damage are taken into account.

[2)] Taxonomic classification – also subspecies; in case that the taxonomical classification is uncertain the JKI-scientist initiates the taxonomic classification, as far as possible.

[3)] If so, which organism (which organisms) is (are) transmitted and does it (do they) occur in Germany / the MS?

[4)] If so, which organism serves as a vector and does it occur in Germany / the MS?

[5)] Description of the pattern of damage and the severity of the symptoms/damage on the different host plants

[6)] Presence of the host plants in protected cultivation, open field, amenity plantings, forest.
Where, in which regions are the host plants present and to which extent?
How important are the host plants (economical, ecological,..)? Possible origin

[7)] Presence of the host plants in protected cultivation, open field, amenity plantings, forest, ...;
Where, in which regions are the host plants present and to which extent?
How important are the host plants (economical, ecological,..)? Possible origin

[8)] E. g. acc. to CABI, EPPO, PQR, EPPO Datasheets

[9)] Which pathways are known for the pest and how important are they for the possibility of introduction? Primarily the transport of the pest over long distances is meant, normally with infested traded plants, plant products or other contaminated articles. This does not comprise the natural spread resulting from introduction.

[10)] Which pathways are known for the pest and of which relevance are they in respect of the possibility of spread? In this case, the natural spread resulting from introduction is meant.

[11)] Under the given prevalent environmental conditions

[12)] Under the given prevalent environmental conditions (native areas and areas of introduction)

[13)] Description of the economic, ecological/environmental relevant and social damage in the area of origin resp. areas of occurrence up to now

[14)] Description of the economic, ecological/environmental relevant and social damage to be expected in Germany, as far as possible and required, differentiated between regions

[15)] Description of the economic, ecological/environmental relevant and social damage to be expected in the EU/other Member States, as far as possible and required, differentiated between regions

[16)] Can the pest be controlled? Which possibilities of control are given? Are plant health measures conducted in respect to this pest (in the areas of current distribution resp. by third countries)?

[17)] Description of possibilities and methods for detection. Detection by visual inspections? Latency? Uneven distribution in the plant (sampling)?