Express-PRA for *Sitophilus zeamais* – Interception –

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Initiation: Interception of a consignment of tamarind (*Tamarindus indica*) from Malawi by the plant protection service of the Federal State Hesse

Express PRA	***Sitophilus zeamais* Motschulsky, 1855**		
Phytosanitary risk for Germany	**high** ☐	**medium** ☐	**low** ☒
Phytosanitary risk for EU Member States	**high** ☐	**medium** ☒	**low** ☐
Certainty of the assessment	**high** ☐	**medium** ☒	**low** ☐
Conclusion	The maize weevil *Sitophilus zeamais* that occurs mainly in subtropical and tropical regions is already present in storage facilities in Germany. In the EU, the species has been found in the field in Greece, Italy, Croatia, Portugal, Spain and Slovenia. The beetle is neither listed in the Annexes of Regulation (EU) 2019/2072 nor by EPPO. Beetles and larvae cause damage to maize and other grains and can also attack fruits. Due to the climatic conditions, it is assumed that *S. zeamais* cannot establish in the open in Germany. The species has already established in southern European EU Member States. The establishment in storage facility is especially favoured by warm and humid conditions. Due to its wide distribution in the EU and because it is (up to now) primarily a storage pest, , *Sitophilus zeamais* is not classified as a potential quarantine pest, and Article 29 of Regulation (EU) 2016/2031 does not apply. However, to avoid major damage, especially in storage facilities, and to limit further spread, it is recommended to treat or destroy infested consignments.		
Preconditions for an Express-PRA fulfilled?	Yes. Is known as a pest, is not listed, so far, it is not established in the area covered by the reporting plant protection service.		
Taxonomy, common name, synonyms	Coleoptera, Dryophthoridae, *Sitophilus*, *Sitophilus zeamais* Motschulsky, 1855, common name in German: La Plata-Maiskäfer, synonym: *Calandra zeamais*		
EPPO Code	CALAZM		

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Does a relevant earlier PRA exist?	No
Distribution and biology	*Sitophilus zeamais* is present worldwide., The beetle is present in storage magazines in the EU and/or outdoors in Greece (maize weevil more often than rice weevil *S. oryzae*, Athanassiou and Buchelos, 2001), Italy (widespread and frequent), Croatia (occasionally in samples; several years ago, infestation in the field), Portugal (main pest in rice and maize), Spain (widespread, especially in the north-east of the country) and Slovenia (occasional presence), probably also in other EU-Member States. Furthermore, *S. zeamais* occurs in Serbia and Turkey – also, outdoors–, especially in the Black Sea region (maize crops) (Adler, personal communication). In Germany, *S. zeamais* is present in storage magazines (Bahr and Prinz, 1977, Schöller, 2013). The beetle can cause significant damage in the tropics and in hot summers in southern Europe. As climate change progresses, this could also increasingly happen in Central Europe.
Are host plants present in the PRA-region? If so, which?	Yes. In Germany, the beetle is present as primary storage pest (Schöller, 2013). Primarily, it infests maize grains, but also rice, wheat and other stored grains. Birdseeds and noodles can also be infested. The infestation of living plants is also possible, of maize as well as of other grain and fruit plants. In southern Brazil, infested fruits (marks of feeding and oviposition) were found, and oviposition and larval development were detected in peaches and apples in the laboratory (Nörnberg *et al.* 2018).
Transfer pest Warensendung →host plant	The movement of eggs and larvae with the host plants is possible. The beetles are good flyers and can easily spread in the open fields, which is also evident from their distribution in southern Europe where the beetle can be found from Portugal to Greece and Turkey.
Is a vector/further plant needed for host alternation? Which? Distribution?	No.
Climate in distribution area comparable to PRA-region?	As it is a tropical/subtropical species, the climate in Germany is not suitable for an establishment in the open field but in southern EU-Member States. The beetle seems to favour the proximity to the sea, apparently, since the winters there are less strong and the air humidity is relatively high (Adler, personal communication).

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If no, are host plants present in protected cultivation?	In Germany, the establishment in storage magazines is possible, especially under warmer and more humid conditions.
Damage to be expected in the PRA-region?	Yes, in northern EU-Member States in storage magazines, in southern Member States also outdoors. In hot summers in continental Europe, damage might occur outdoors.
Is an infestation easy to eradicate?	*Sitophilus zeamais* can show a high resistance against pyrethroids (Guedes *et al*. 2006). According to EPPO (2012), the fumigation with phosphine is successful in storage magazines.
Remarks	The certainty of the assessment is given as medium since no information on the distribution is available from many EU-Member States. *Sitophilus zeamais* is an example for the fact that a distinction between a pest in the field and a storage pest is no longer valid – also, with regard to the climate change. Further examples are the rice weevil (*Sitophilus oryzae*) and the lesser grain borer (*Rhyzopertha dominica*).
Literature	Athanassiou CG, Buchelos C, 2001. The presence of *Sitophilus zeamais* Motschulsky 1855 (Coleoptera: Curculionidae) in Greece: Distribution and food preferences. Annuals of the Benaki Phytopathology Institute, 19, 140-144. Bahr I, Prinz W, 1977. Insekten an Getreidevorräten in der DDR und Verhütung ihres Schadauftretens. Nachrichtenblatt für den Pflanzenschutz in der DDR, 31(10): 200-204. EPPO, 2012. Phytosanitary treatments. Phosphine fumigation of stored products to control stored product insects in general. PM 10/21 (1). EPPO Bulletin 42(3), 498–500 Guedes RNC, Oliveira EE, Guedes NMP, Ribeiro B, Serrão J E, 2006. Cost and mitigation of insecticide resistance in the maize weevil, *Sitophilus zeamais*. Physiological Entomology, 31(1), 30-38. Nörnberg SD, Grützmacher AD, Bento JMS, Adler C, Nava D E, 2018. Unusual behavior of oviposition and development of *Sitophilus zeamais* (Coleoptera: Curculionidae) in peach and apple fruits. Phytoparasitica, 46(1), 69-74. Schöller M, 2013. Checkliste der mit Vorräten assoziierten Insekten Deutschlands. Journal für Kulturpflanzen, 65(5), 192-203.