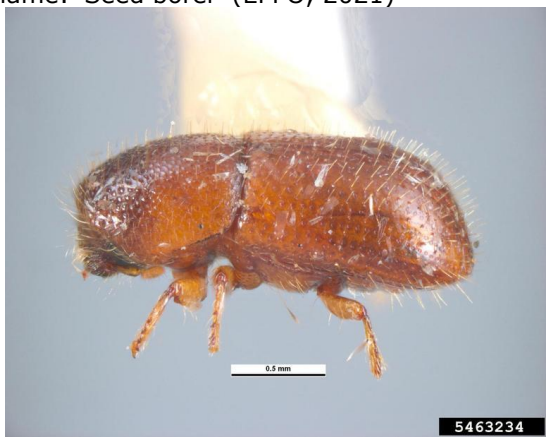
Netherlands Food and Consumer
Product Safety Authority
Ministry of Agriculture,
Nature and Food Quality

Quick scan National Plant Protection Organization, the Netherlands

Quick scan number: QS2021ENT002

Quick scan date: 23-6-2021

No.	Question	Quick scan answer for ***Coccotrypes cyperi***
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*.	*Coccotrypes cyperi,* Beeson (1929) (Coleoptera: Curculionidae, Scolytinae). Common name: 'Seed borer' (EPPO, 2021)  Picture of an adult of *Coccotrypes cyperi*. Photo: Pest and Diseases Image Library, Bugwood.org

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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.*	Events prompting the quick scan: The quick scan was prompted by a finding of *Coccotrypes cyperi* in Sweden on a bonsai tree (probably *Ficus retusa*) that originated from a company in the Netherlands. Rationale behind quick scan: Since 14 December 2019, all non-European Scolytinae are listed (as non-European Scolytidae) as EU quarantine organisms (Implementing Regulation (EU) 2019/2072, Annex II). Before that date only non-European species that attack conifers were regulated in the EU (Council Directive 2000/29/EC, Annex IIAI). More specifically, non-European Scolytinae were regulated for "*plants of conifers (Coniferales), over 3 m in height, other than fruit and seeds, wood of conifers (Coniferales) with bark, and isolated bark of conifers (Coniferales), originating in non-European countries*". EFSA-Panel-on-Plant-Health et al. (2020) has categorised non-EU Scolytinae of coniferous hosts and identified 139 out of the 705 non-EU species that meet all the criteria of an EU quarantine pest. However, all Scolytinae species are still listed as quarantine pests. Only one of the species, attacking conifers (*Polygraphus proximus*) has been fully evaluated and is listed separately in EU phytosanitary legislation (Implementing Regulation (EU) 2019/2072, Annex II). Species on non-coniferous hosts have thus far not been categorised. There are more than 6000 Scolytinae species with the majority being (sub)tropical (EPPO, 2020) and there may be about 5000 non-European Scolytinae species on non-coniferous species that legally have the EU-quarantine status since 14 December 2019. Only two of these species have been fully evaluated by the EU and have been listed as EU regulated pests separately since 1992, *Pseudopityophthorus minutissimus* and *P. pruinosus.* Both species have been specifically regulated in the EU because they act as vectors for the EU regulated quarantine fungus *Bretziella fagacearum*. A third species, *Euwallacea fornicatus* sensu lato is currently being discussed for listing. Thus, the criteria for meeting the EU quarantine status has not been evaluated for the majority of non-European Scolytinae species, including *C. cyperi*.
3.	What is the current area of distribution?	*Coccotrypes cyperi* is an 1.7 – 2.3 mm (size of a female) small Scolytinae beetle that originates in Southeast Asia. It has been introduced into Australia, South America, the United States (on Hawaii and in continental states) and more recently into Central America. Haack & Rabaglia (2013) citing Wood (1982) state that the first record of *C. cyperi* in the United States was in 1934, and Wood (1982) himself mentions that introduction from the Indo-Malayan region into the Americas (probably meaning South America) was prior to 1915. Distribution data retrieved from records listed by Wood (1982, 2007): - America: Antilles Islands, Costa Rica, Jamaica, Panama, Puerto Rico, Surinam, Trinidad, USA (Florida, Louisiana, Hawaii). Recently, the species has been

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		recorded in the Tabasco and Chiapas regions of Mexico both in nature reserves and in cocoa agro-ecosystems (Equihua-Martinez, A. 1992; Pérez et al. 2009; 2016); - Asia and Oceania: India, South China to Australia. <u>Distribution of other *Coccotrypes* spp.</u> The genus *Coccotrypes* has a worldwide distribution in tropical and subtropical areas. Wood (2007) mentions that the genus contains 125 species, of which 10 have been introduced into South America through commerce; one species, *C. robustus*, is native to America (Cuba, Puerto Rico, South Florida). Introduction of all non-native *Coccotrypes* species present in the Americas has taken place in historic times (Wood, 1982, 2007).
4.	What are the hostplants?	A worldwide host list of *C. cyperi* has been published by Wood (1982, 2007): *Aesculus punchuana, Amoora walichii, Artocarpus lakoocha, Borassus flabellifer, Canarium strictum, Carallia lucida, Careya arborea, Cossia arabica, Cynometra hemitobophylla, Diptocarpus trinervis, Eleocarpus oblongus, Eugenia formosa, E. sp., Ficus glomerata, Gluta travancoria, Macademia indica, Macaranga denticulata, Mammea americana, Mangifera indica, Orbignya oleifera, Persea americana* (in seeds), *Phytellephas macrocarpa, Pronia copaifer* (in seeds), *Swietenia macrophylla, Swintonia floribunda, Terminalia myriocarpa, Theobroma cacao, Vateria indica, Xylia dolabriformis*. In addition, Wood (2007) mentions individuals caught with ethanol – baited traps in stands of *Pinus oocarpa* and *Pinus elliottii* in Brazil (i.e. host status questionable). In a more recent study, several individuals were collected from bark of *Pinus kesiya* in Yunnan province, China (Chang et al. 2017). Morillo and Berkov (2019) reared *C. cyperi from Eschweilera biflava, Gustavia brachycarpa, Apeiba tibourbou, Lonchocarpus macrophyllus, Luehea seemannii* and added that the species emerged both from thick branches and thin twigs.
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.).*	No scientific papers have been found that mention economic or environmental impact by *C. cyperi*. Haack and Rabaglia (2013) categorizes *C. cyperi* as a seed and twig feeder. Kirkendall et al. (2015) mentions that within the *Coccotrypes* genus *C. cyperi* is a kind of generalist that is able to develop on different types of resources such as seeds, bark and leaf stalks (petioles). <u>*Coccotrypes* spp. other than *C. cyperi*</u> Within the genus *Coccotrypes*, two species are known for their economic importance. One is *C. rhizophorae* (Hopkins), a specialist major pest feeding on propagules, seeds and roots of mangrove *Rhizophora spp.* and in Indonesia also attacking *Nephelium lappaceum* (Wood 2007, Baena et al. 2020). The other species mentioned for its economic importance is the date seed borer *C. dactyliperda*, which originates from the Middle East

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		and has been the first documented Scolytinae species that was introduced to Europe (Tuscany, Italy). This species has been reported to infest up to 100% of date palm seeds in some areas although high spatial variation in damage levels has been observed.
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)	*C. cyperi* can likely establish in tropical greenhouses in botanical gardens, zoos etc.. The species is polyphagous and may develops in the bark of many woody plant species. The species may also be able to establish in commercial greenhouses but establishment may be hampered if host plants only stay for a short period in the greenhouse. Infested plants may have been traded or removed before the species has completed a life cycle and infested other plants present in the greenhouse. Establishment outdoors is assessed as 'unlikely' in the Netherlands. It is a (sub)tropical species and the climate in the northernmost area of its current distribution (Louisiana, USA) is much warmer than the climate in the Netherlands. It has been introduced to many new areas in the world but no populations have been reported in areas with climates similar to that in the Netherlands.
7.	Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).	The species is polyphagous and has been reported from regions with tropical and subtropical climates. Its most northerly distribution seems to be Louisiana in the USA which has a humid subtropical climate; climate type cfa according to the Köppen Geiger classification (Beck et al., 2018). Parts of the EU also have a humid subtropical climate, e.g. parts of Italy, Slovenia, Croatia and Bulgaria (MacLeod & Korycinska, 2019). These areas may be suitable for establishment. There is, however, uncertainty because the temperature requirements for *C. cyperi* are not known and no data were found on the distribution of *C. cyperi* in Louisiana. The southern part of Louisiana has plant hardiness zones of 9 and 10 while the areas in the EU with the same climate type (cfa) has mainly plant hardiness zones 7 and 8 (Magarey et al., 2008). The species may, however, also be able to establish in (warm) Mediterranean climates where winters are milder. At least 18 exotic Scolytinae species have established in (parts of) the Mediterranean area in the EU including species of (sub)tropical origin (Rassati et al., 2016). For these reasons, it is assessed to be likely that *C. cyperi* can establish in (parts of) southern EU.
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 most likely pathways for *C. cyperi* to spread over long distances are trade of plants for planting including (large) seeds and trade of wood. Wood (1982, 2007) also mentions bird food as potential pathway. No information was found on natural dispersal capacity.
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?	Based on available information the extent of economic damage cannot be assessed. However based on lack of reports of damage from its current area of distribution including introduced ranges in North and South America, the species does not seem to be of economic importance. *C. cyperi* has been introduced long ago into several new areas without reports on economic damage (see Question 3).

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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, it was detected in plants for planting of *Ficus*.
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	Traps • *Coccotrypes* species and *C. cyperi* are attracted by flight traps baited with ethanol or a combination of ethanol and acetic acid, which may be used for monitoring (Pérez-De La Cruz et al 2009, 2016). Natural enemies • No natural enemies of *C. cyperi* have been found in literature. Interceptions of *C. cyperi* and other *Coccotrypes* species by EU member states (2010 - 2020) • In 2015, Cyprus notified an interception of *C. cyperi* on *Ficus* plants for planting originating from China (Europhyt, TRACES databases). Cyprus also notified an interception on *Ficus* plants for planting from China in 2013 (EPPO, 2013). • From 2010 to 2020, the UK has notified interceptions of *Coccotrypes* on seeds two times, from USA (*C. dactyliperda*) and Australia (*Coccotrypes* sp.) (Europhyt, TRACES databases). • The Netherlands has intercepted *C. cyperi* twice on plants for planting of *Ficus* from China in 2017; *C. dactyliperda* has been intercepted on a Christmas wreath from Turkey in 2020. Note that *C. dactyliperda* is established in several EU member states (Spennemann, 2018) and as far as known these member states do not take official control measures against this species. Interceptions by USA • *Coccotrypes* spp. have frequently been intercepted by the USA. From 1984 to 2000, *Coccotrypes* has been the 4th most frequently encountered genus within the Scolytidae (after *Hypothenemus*, *Pityogenes* and *Ips*); *Coccotrypes* was intercepted 520 times in commodities from 51 countries (Haack, 2001). Out of the 520 interceptions, only 20 were found in wood, the majority was in seeds and fruits. Only three *Coccotrypes* interceptions out of the 520 were identified to species level. This low level of identifications likely relates to the underlying diagnostic challenge associated with identification (Haack 2001).

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		Fungi Chang et al. (2017) isolated a few "Ophiostomatoid fungi" from galleries of *C. cyperi* in Yunnan Province in China. This group of fungi is known to contain tree pathogens and species that stain and degrade wood. None of these fungi were isolated directly from beetles. Instead, Ophiostomatoid fungi were isolated from the galleries of *C. cyperi* and phoretic mites associated with this *Coccotrypes* species (Chang et al. 2017).
13.	References	Baena M.L., Chamorro-Florescano I.A., Huesca-Domínguez I. and Delfín-Alfonso C.A. 2020. Characteristics of Insect Damage in Propagules of Red Mangrove (Rhizophora mangle) from the Gulf of Mexico. Southwestern Entomologist, 45, 175-184. Beck HE, Zimmermann NE, McVicar TR, Vergopolan N, Berg A & Wood EF, 2018. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Scientific data, 5, 1-12 Bentz B.J. and Jönsson A.M. 2015. Modelling Bark Beetle Responses to Climate Change. pp. 533-553. in F.E. Vega and Hofstetter R.W. (eds) Bark beetles: biology and ecology of native and invasive species. 620 pp. Academic Press, London, UK, ISBN 9780124171565. Chang, R., Duong T.A., Taerum S.J., Wingfield M.J., Zhou X. and De Beer Z.W. 2017. Ophiostomatoid fungi associated with conifer-infesting beetles and their phoretic mites in Yunnan, China. MycoKeys 28, 19–64. doi: 10.3897/mycokeys.28.21758. EFSA-Panel-on-Plant-Health, Bragard C, Dehnen-Schmutz K, Di Serio F, Gonthier P, Jacques M-A, Jaques Miret JA, Justesen AF, MacLeod A, Magnusson CS, Navas-Cortes JA, Parnell S, Potting R, Reignault PL, Thulke H-H, Van der Werf W, Civera AV, Yuen J, Zappalà L, Grégoire J-C, Kertész V, Streissl F & Milonas P, 2020. Pest categorisation of non-EU Scolytinae of coniferous hosts. EFSA Journal, 18, e05934. https://doi.org/10.2903/j.efsa.2020.5934 EPPO, 2013. EPPO report on notifications of non-compliance. EPPO Reporting Service, 2013/088. EPPO (European and Mediterranean Plant Protection Organisation, Paris, France), 2020. EPPO Study on the risk of bark and ambrosia beetles associated with imported non-coniferous wood. Available online: https://www.eppo.int/RESOURCES/eppo_publications EPPO (European and Mediterranean Plant Protection Organisation, Paris, France), 2021. Coccotrypes cyperi. EPPO Global Database. Available online: https://gd.eppo.int/taxon/COCOCY Equihua-Martinez, A. 1992. Coleopteros Scolytidae atraidos a trampas NTP-80 en el soconusco, Chiapas, Mexico. Folia Entomologica Mexicana. 84: 55-66. Haack R.A. 2001. Intercepted Scolytidae (Coleoptera) at U.S. ports of entry: 1985–2000. Integrated Pest Management Reviews 6, 253–282. Haack R.A. and Rabaglia R.J. 2013. Exotic bark and ambrosia beetles (Coleoptera: Curculionidae: Scolytinae) in the United States: potential and current invaders. In:

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		Potential invasive pests of agricultural crops. (Peña J.E. ed.), CABI International, Wallingford, UK, pp. 48-74. Kirkendall R.L., Biedermann P.H.W. and Jordal B.H. 2015. Evolution and diversity of bark and Ambrosia Beetles. pp 85 – 156. in F.E. Vega and Hofstetter R.W. (eds) Bark beetles: biology and ecology of native and invasive species. 620 pp. Academic Press, London, UK, ISBN 9780124171565 MacLeod A & Korycinska A, 2019. Detailing Köppen–Geiger climate zones at sub-national to continental scale: a resource for pest risk analysis. EPPO Bulletin, 49, 73-82. Magarey RD, Borchert DM & Schlegel JW, 2008. Global plant hardiness zones for phytosanitary risk analysis. Scientia Agricola, 65, 54-59. Morillo J.A. and Berkov A. 2019. Alien Scolytines on the Osa Peninsula, Costa Rica (Coleoptera: Curculionidae: Scolytinae). Florida Entomologist. 102, 486-489. Pérez-De La Cruz M., Equihua-Martínez A., Romero-Nápoles J., Sánchez-Soto S. and García-López E. 2009. Diversity, dynamic population and host plants of bark and ambrosia beetles (Coleoptera: Curculionidae) associated to the cocoa agroecosystem in Tabasco, Mexico. Revista Mexicana de Biodiversidad 80, 779- 791. Pérez-De La Cruz M., Hernández-May M.A., De la Cruz-Pérez A. and Sánchez-Soto S. 2016. Scolytinae y Platypodinae (Coleoptera: Curculionidae) de dos áreas de conservación en Tabasco, México. Rev. Biol. Trop. 64, 319-326. Spennemann DH, 2018. Global distribution of the date stone beetle, Coccotrypes dactyliperda (Coleoptera: Curculionidae, Scolytinae). Journal of Insect Biodiversity and Systematics, 4, 203-226 Wood S.L. 1982. The Bark and Ambrosia Beetles of North and Central America (Coleoptera: Scolytidae), a Taxonomic Monograph. Great Basin Naturalist Memoirs, nr 6 Brigham Young University, Provo, Utah, USA Wood, SL. 2007. Bark and Ambrosia Beetles of South America (Coleoptera: Scolytidae). Monte L. Bean Life Science Museum, Brigham Young University, Provo, Utah
14.	**Conclusions**	This Quickscan was prompted by an interception of *Coccotrypes cyperi* by Sweden on plants for planting of *Ficus* that had been imported from the Netherlands. The *Ficus* plants originated from a third country and the species had most likely entered the EU through import of the plants. *C. cyperi* is a non-European Scolytinae species and as such listed as an EU quarantine pest (as non-European Scolytidae). This EU quarantine status is not based on a pest categorization or risk assessment of each individual Scolytinae species. Therefore, a Quickscan was performed to assess if *C. cyperi* meets the criteria of an EU quarantine pest. The species can enter on plants for planting and wood of its host plants. It is assessed to be likely that *C. cyperi* can establish in (parts of) southern EU. No evidence was found that the species is causing economic impacts in its current area of distribution including

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		the continents on which it has been introduced. Therefore, it cannot be concluded that the species meets all of the criteria of an EU quarantine pest (one of the criteria is having an unacceptable impact after introduction).
15.	**Follow-up measures**	Infested plants must be destroyed.