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: QS2021ENT004

Quick scan date: 23-06-2021

No.	Question	Quick scan answer for ***Hypothenemus* spp.**
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*.	*Hypothenemus* spp. [Westwood, 1836] (Coleoptera: Curculionidae, Scolytinae).  Picture of an adult of kiawe scolytid (*Hypothenemus birmanus*) (Eichhoff, 1878)_Pest and Diseases Image Library , Bugwood.org

No.	Question	Quick scan answer for *Hypothenemus* spp.
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 the finding of several species of *Hypothenemus* in a Dutch greenhouse that import and trade (sub)tropical plants. Individuals were caught in ethanol – baited Scolytinae traps placed in compartments with different (sub)tropical plant species and additional samples originated from plants for planting of *Annona cherimola, Bauhinia x blakeana* and *Ficus* sp.. Subsequent molecular analysis (based on CO1 sequence data) showed that these specimen possibly belonged to four species, none of them matching *H. eruditus, H. hampei* or *H. obscurus* (*H. eruditus* is present in several EU member states; *H. hampei* and *H. obscurus* are known as the economically most important *Hypothenemus* species). 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 listed as quarantine pests. Only one of the species, attacking conifers (*Polygraphus proximus*) has been fully evaluated and is listed separately. 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 in case of the majority of non-European Scolytinae species, including *Hypothenemus* spp. The genus *Hypothenemus* contains species that are among the smallest of Scolytinae (females 0.9 - 2 mm long). It is also one of the most species - rich genera, with Wood (2007) mentioning 181 species and new species are still being described even in regions where the bark beetle fauna is well known (Johnson et al. 2016). *Hypothenemus* species are found in very diverse feeding niches and while some are among the most polyphagous of Scolytinae, others are much more restricted in their host plant choices. In this quick

No.	Question	Quick scan answer for ***Hypothenemus* spp.**
		scan, (i) information about the genus as a whole is given as well as (ii) an overview of the most common (i.e. based on worldwide distribution) *Hypothenemus* species and (iii) the two *Hypothenemus* species, *H. hampei* and *H. obscurus*, known for their economic impact are briefly discussed.
3.	What is the current area of distribution?	Members of the genus *Hypothenemus* are present worldwide in the (sub)tropics with several species having a global distribution. Wood (2007) and Vega et al. (2015) give a comprehensive overview of the distribution and biology of the genus *Hypothenemus* and the latter lists the following species as most common: *H. areccae* (origin Southeast Asia) and *H. birmanus* both widely distributed and present in every tropical region; *H. crudiae* is widespread across the tropics except Australia; *H. dissimilis* and *H. interstitialis* are (sub)tropical species from the Americas, and *H. opacus* "only" present in Central and South America; *H. eruditus* is the most widely distributed Scolytinae species, present in all (sub)tropical regions, including southern Europe and the Mediterranean (including France, Italy, Spain, Malta) (Wood 2007; Kirkendall & Faccoli 2010; Vega et al. 2015); *H. seriatus* has a worldwide distribution across tropical regions from Africa, Asia Minor, Indonesia, Micro- and Polynesia, Hawaii, Australia, East USA, Antilles, Argentina. *H. seriatus* have also been found in a tropical greenhouse in the United Kingdom (Turner & Beaver, 2015). The *Hypothenemus* species that are known as the economically most important ones are the coffee berry borer *H. hampei* and the tropical nut borer *H. obscurus*. *H hampei* originate from Africa (Liberia) and has been introduced in many countries worldwide being reported from Brazil, Peru, Columbia, Jamaica, Costa Rica, Mexico, Guatemala, Honduras, Panama, Cuba, Vietnam, Indonesia, Malaysia, Fiji, Philippines, Micronesia and Sri-Lanka; *H. obscurus* was originally described from the Americas (Vega et al. 2015; Wood 2007) and is now found across the tropics except Australia.
4.	What are the hostplants?	Most *Hypothenemus* species have a very wide host range (Wood, 1954; Wood, 2007), but some species have a relatively small host range. For example, while *H. javanicus* has been recorded from 32 plant families (Atkinson 2014, Vega et al. 2015.), *H. pubescens* is only known from coastal grasses (Wood 2007). Also globally widespread species vary in their host range. The most extreme polyphagous species is *H. eruditus*, which has been found on innumerable hosts in nearly any parts of the plants sometimes within galleries of other insects and even in fruiting bodies of fungi and in furnitures (Browne 1961; Deyrup 1987; Vega et al. 2015). *H. hampei* is almost exclusively attacking berries of *Coffea spp*. A recent study by Vega et al. (2020) found that in Puerto Rico, *H. hampei* is rarely attacking alternative hosts and may occasionally use *Guarea guidonia*, *Inga vera*, *Cajanus cajan* and *Schefflera actinophylla* as a host. The hosts plants listed by Wood (2007) for other common *Hypothenemus* species are given below.

No.	Question	Quick scan answer for ***Hypothenemus*** **spp.**
		<u>*H. areccae*</u>: numerous species of herbs, shrubs, and trees, in fruits, nuts, seeds, twigs, etc. Records often confused with those of *H. eruditus*. <u>*H. birmanus*</u>: breeds in small stems of woody plants; *Acras sapota, Adenanthera pavonia, Annona sp., Ardesia paniculata, Cassia florida, Dalbergia gastrophyllum, Eucalyptus trachyphloia, Eugenia buxifolia, Ficus aurea Litchi chinensis, Mangifera indica, Melia azedarack, Ocotea catesbyona, Persea borbonia, Phelocarpus septrionalis, Prunus domesticus, Quercus spp., Rhizophora mangle, Swietenia macrophylla, Trema floridana, Vitis* sp. <u>*H. crudiae*</u>: in twigs, small branches, trees, shrubs, vines, weeds, common backyard plants. Also breed in a wide variety of seeds, pods, or other fruiting bodies; *Abutilon mollissimum, Acacia farnesiana, Achras sapota, Adenanthera pavonina, Aloe vera, Astragalus sp., Bauhinia grandiceps, B. krugi, Betula* sp.*, Bidens pilosa, Bignonia sp., Boehmeria scabra, Bucida bucerus, Bursera* sp.*, Carica papaya, Carya* spp.*, Cassia nodosa, Cinnamomum camphora, Citrus* sp.*, Clerodendron squamatum, Crataegus* sp.*, Cucurbita* sp.*, Dalbergia ecastophyllum, Derris* sp.*, Dioclea megacarpa, Diphysia robinioides, Dolonix rigia, Ficus* spp.*, Glycine max, Grewia asiatica, Inga* sp.*, Juglans nigra, Magnolia sp., Mangifera indica, Morus rubra, Passiflora latifolia, Phalocarpus septentrionis, Pinus taeda, Prunus persica, Pyrus malus, Quercus spp., Quisqualis indica, Rhizophora mangle, Richinus communis, Schleichera trifuga, Serjania racemosa, Sida rhombifolia, Smilax sp., Theobroma cacao, Wisteria* sp.*, Yucca* sp. <u>*H. interstitialis*</u>: in twigs, small branches (also of *Coffea* spp.), in pith and xylem, also known (uncommon) in fruit and seed; *Acer rubrum, Aesculus sp., Carya spp., Cercus canadensis, Coffea* spp.*, Fagus grandifolia, Ficus* sp.*, Liquidambar styraciflua, Magnolia* sp.*, Miconia* sp.*, Mimosa* sp.*, Morus rubra, Ocotea catesbyana, Persea.* <u>*H. opacus*</u>: in fruiting stems of seaside grass; *Andropogon* sp.*, Cynodon dactylon, Paspalum vaginatum*. <u>*H. seriatus*</u>: in twigs, small branches of trees, shrubs, lianas, stems of common weeds. Also in leafstocks, pods and large seeds. *Acacia faresiana, Acras sapota, Acrocomia sclerocarpa, Aleurites fordii, Cassia glauca, Bauhinia tomentosa, Bursera* sp.*, Cajanus cajon, Calliandra confusa, Callicarpa* sp.*, Canavalia* sp.*, Carya spp., Cecropia sp., Citrus aurantifolia, Coccothrinax alta, Coffea bukowensis, Cordia* sp.*, Dipholis salicifolia, Eleagnus pungens, Erythrina* sp.*, Eugenia buxifolia, Ficus* spp.*, Galactia spiciformis, Guacea quara, Hyracreptans* sp.*, Ipomoea cathartica, Juglans nigra, Liquidambar styraciflua, Maclura pomifera, Mangifera indica, Muounia* sp.*, Ochroma* sp.*, Ocotea catesbiana, Persea americana, P. borbonea, Philabertella clausa, Pinus* spp.*, Pithecellobium guateloupense, Pittospermum* sp.*, Populus deltoides, Prunus persica, Quercus* spp.*, Rhamnus sp., Rhus glabra, Saba parviflora, Salix* sp.*, Serjania* sp.*, Sida*

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		rhombifolia, Tectona grandis, Theobroma cacao, Thespersia pulpulnea, Trachylobium narrucosum, Trema floridana, Trichilia arborea, Wisteria sp.*, Urena* sp.*, Yucca* sp. *H. obscurus*: in stems, fruit, seeds, and nuts. Commercially important hosts include nutmeg (*Myristica fragrans), Macadamia* sp.*, Theobroma cacao, Tamarindus indica, Dimocarpus longan, Melicoccus bijugatus, Artocarpus heterophyllus* (Beardsley, 1990)*, Bertholletia excelsa, Cecropia* sp.*, Crotalaria* sp.*, Hymenaea courbaril, Mytistica fragrans, Serjania* sp.
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.).*	Type of damage caused by *Hypothenemus* spp. (Kirkendall et al. 2015): *Hypothenemus* spp. can be found in many kinds of plant tissue. The biology of *Hypothenemus* spp. is similar to that of *Coccotrypes* spp, in that it exhibits inbreeding, female biased sex ratios (males are reduced and flightless) and advanced social behaviour. A gallery is started by a single, mated female, referred to as the foundress. The foundress initiates the gallery with a single entrance hole, usually located at stem or leaf nodes, or in a coffee berry for the coffee berry borer. A gallery may have just one hole, out of which frass and debris are pushed. Different species may be found together in the same gallery system after merging of original independent galleries (Wood, 1954). Galleries in twigs may also extend into leaf petioles or fruits. Approximate development time of *Hypothenemus* in the field is 28 days (Browne, 1961). Species of the genus are categorized as phloepophagous (feeding on inner bark) or myelophagous (feeding in pith in twigs), spermatophagous (seed breeders), xylophagous (in wood) and occasionally herbiphagous (feeding on non-woody plants) and one known species (*H. curtipennis*) being mycetophagous species (specialist fungi feeder). *H. hampei* is the only species known to attack live attached fruit. Economic damage by *Hypothenemus* spp.: The economic damage caused by most *Hypothenemus* species is unknown, and some of them although ubiquitously present (e.g. *H. eruditus*) cause little to no economic damage (Vega et al. 2015). By far the economically most damaging species is *H. hampei* followed by *H. obscurus*. Coffee is grown on more than 10 million hectares in ca. 80 countries (FAOSTAT, 2014). The economic impact of *H. hampei* on coffee production is significant although exact estimates are difficult to find. Besides *H. hampei*, other species such as *H. seriatus*, *H. crudiae*, *H. obscurus* and *H. eruditus* have also been found to attack *Coffea* berries. The name "false coffee berry borer" may refer to either of these species. However, these species attack dry berries (unlike *H. hampei* that attacks green berries) and will allegedly not enter the seed. However, due to the taxonomic difficulties of separating these species and due to their comparable biology, their true economic impact (especially that of *H.*

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		seriatus) is obscured by the taxonomic confusion in identifying them (Wood 2007; Vega et al. 2015). *H. obscurus* is the tropical nut borer and is economically important attacking a range of seeds and fruits. Although the worldwide cost to the industry is unknown, yield losses in macadamia nuts in Hawaii due to the species ranged from 0.8 to 4.6% (which is equivalent to $0.3–$1.8 million per year) from 1998 to 2012 (Vega et al. 2015; calculated from NASS reports; NASS 1998–2012). This estimate does not include the extra incurred management costs.
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)	Since many *Hypothenemus* species are polyphagous and able to develop in numerous plant parts and other substrates they can likely establish in tropical greenhouses in botanical gardens, zoos etc.. Establishment in commercial greenhouses may be hampered by the relatively fast rotation of plants in these greenhouses. *H. eruditus* and *H. seriatus* are indeed present in a tropical greenhouse in the United Kingdom and *H. eruditus* also in a tropical greenhouse in Hungary (Kirkendall & Faccoli 2010; Turner & Beaver, 2015). Given that all known species of the genus are of (sub)tropical origin, outdoor establishment of members of this genus is 'unlikely' in the Netherlands.
7.	Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).	The genus contains several polyphagous species of worldwide distribution in (sub)tropical regions. Several species are in continental USA and at least one species (*H. eruditus*) has established in southern Europe (Spain, Italy, France, Malta) (Kirkendall and Faccoli, 2010). In addition, at least 17 other 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 (some) other *Hypothenemus* spp. can establish in (parts of) southern EU. There may be a difference in establishment potential between species that are of true tropical origin and those that originate from more subtropical areas. *Hypothenemus* spp. can likely establish in tropical greenhouses across the EU (see Question 6).
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 *Hypothenemus* to spread over long distances are trade of plants for planting including (large) seeds and trade of wood. *Hypothenemus* spp. (together with *Coccotrypes, Pityogenes, Hypocryphalus*) are among the most frequently intercepted Scolytinae species at ports of entry in the US (Haack 2001; Haack and Rabaglia 2013).
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	Two *Hypothenemus* species, *H. hampei* and *H. obscurus* are known to cause significant economic impacts in their current area of distribution on coffee and tropical nuts, respectively (see Question 5). Coffee is not produced in the EU (at a commercial scale)

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	occur if the organism would become established in NL and the EU, respectively?	and *H. hampei* is, therefore, not assessed to cause significant economic impacts if it were to become established in the EU. *H. obscurus* has a wider host range and might be a threat to the production of certain fruit and nuts in southern EU member states and a more detailed assessment would be necessary to better assess the risk of this species for the EU. The species found in the commercial greenhouse in the Netherlands were, however, neither of these two species (see Question 2) and most *Hypothenemus* species are not known to cause any economic impact (Vega et al., 2015). *H. eruditus* has been introduced into southern Europe but no economic damage have been reported. *H. eruditus* and *H. seriatus* are present in a tropical greenhouse in the UK where they do not seem to cause any damage (Turner and Braver, 2015). For these reasons, no significant economic impacts are expected for the majority of *Hypothenemus* species if they were to become established in the EU.
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 Scolytinae traps and in plants for planting of *Annona cherimola*, *Bauhinia x blakeana* and *Ficus* sp.
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	<u>Taxonomic challenges</u> The taxonomy (both morphological and molecular) of the group is not yet fully reconciled. The majority of the >181 described *Hypothenemus* species are poorly known (Wood 2007) and most species are not distinguishable when using the original published descriptions (Vega et al. 2015). Despite the difficulties in morphological identification, *Hypothenemus* species are yet to receive much attention using molecular techniques. Recent studies of Amini et al. (2020) and Pistone et al. (2018) have studied the molecular phylogeny of Scolytinae, including the *Hypothenemus* genus. Amini et al. (2020) found considerable (up to 18%) intraspecific nucleotide variation in CO1 sequences between individuals of *Hypothenemus eruditus*, which supported earlier morphological studies and suggested the presence of cryptic species within the *H. eruditus* complex (Kambestad et al. 2017). <u>Traps</u> *Hypothenemus* species are attracted to flight traps baited with ethanol or a combination of ethanol and acetic acid (Equihua-Martinez 1992, Pérez-De La Cruz et al 2009, 2016) and to trap logs of different plant species (da Silva et al. 2020). <u>Interceptions of *Hypothenemus* spp. by EU member states (2010 - 2020)</u> There are no interceptions of *Hypothenemus* notified during the periode 2010 - 2020 but there are many interceptions of Scolytidae in wood (packaging material) (Europhyt,

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		TRACES). The NPPO of the Netherlands has intercepted *Hypothenemus* sp. in seeds of *Jatropha curcas* in travellers' luggage at Schiphol airport in 2016 (not notified in Europhyt; no quarantine pest at that time). <u>Fungi</u> Close association of *Hypothenemus* species with fungi appears limited and some records are debatable. For example, Rojas et al. (1999 mentioned in Vega et al. 2015) isolated *Fusarium solani* (Mart.) Sacc. (current name: *Haematonectria haematococca* (Berk. and Broom) from adult female *H. hampei* and proposed a "close association" of fungi with this species, but this was not supported by a subsequent study specifically designed to test this hypothesis (Vega et al. 2015). To date *H. curtipennis* remains the first and only cryphaline ambrosia beetle, and the only *Hypothenemus* species in which mycangia have been identified (Vega et al. 2015). <u>Natural enemies</u> Several natural enemies of *H. hampei* are mentioned in literature including specialist parasitoids, generalist predators, specialist and generalist entomopathogenic nematodes and generalist entomopathogenic fungi.
13.	References	Amini S., Nozari J., Smith S.M., Martinez I., Hosseini R. and Faccoli M. 2020. Morphological and molecular identification of the Iranian bark and ambrosia beetles (Coleoptera, Curculionidae, Scolytinae). Zootaxa 4852 (3): 251–284. Atkinson, T.H., 2014. Bark and Ambrosia Beetles. Available online: http://www.barkbeetles.info. Beardsley, J.W., 1990. Hypothenemus obscurus (Fabricius) (Coleoptera: Scolytidae), a new pest of macadamia nuts in Hawaii. Proc. Hawaii. Entomol. Soc. 30, 147–150. Browne, F.G., 1961. The biology of Malayan Scolytidae and Platypodidae. Malayan Forest Records 22, 1–255. da Silva C.O., Trevisan H., de Souza, T.S., de Carvalho A.G. 2020. Occurrence of Scolytinae in mangrove with impact trap and in wood of five forest species. Bioscience Journal. 36, 256 - 265. Deyrup, M., 1987. Trischidias exigua Wood, new to the United States, with notes on the biology of the genus (Coleoptera: Scolytidae). The Coleopterists Bulletin 41, 339–343. Equihua-Martinez, A. 1992. Coleopteros Scolytidae atraidos a trampas NTP-80 en el soconusco, Chiapas, Mexico. Folia Entomologica Mexicana. 84: 55-66. 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

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		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. Beschikbaar online: https://www.eppo.int/RESOURCES/eppo_publications FAOSTAT, 2014. Food and Agriculture Organization of the United Nations,Statistics Division. Available online at: http://faostat.fao.org/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: Potential invasive pests of agricultural crops. (Peña J.E. ed.), CABI International, Wallingford, UK, pp. 48-74. Johnson A.J., Atkinson T.H. and Hulcr J. 2016. Two remarkable new species of Hypothenemus Westwood (Curculionidae: Scolytinae) from Southeastern USA. Zootaxa 4200 (3): 417–425. Kambestad, M., Kirkendall, L.R., Knutsen, I.L. & Jordal, B.H. 2017. Cryptic and pseudo-cryptic diversity in the world's most common bark beetle—Hypothenemus eruditus. Organisms Diversity & Evolution, 17, 633–652. https://doi.org/10.1007/s13127-017-0334-6 Kirkendall L.R. and Faccoli M. 2010. Bark beetles and pinhole borers (Curculionidae, Scolytinae, Platypodinae) alien to Europe. ZooKeys. 56, 227–251. doi: 10.3897/zookeys.56.529 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 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. Pistone D., Gohli J., Jordal B.H. 2018. Molecular phylogeny of bark and ambrosia beetles (Curculionidae: Scolytinae) based on 18 molecular markers. Systematic Entomology. 43, 387 - 406. Rassati D, Lieutier F & Faccoli M, 2016. Alien wood-boring beetles in Mediterranean regions. In, Insects and diseases of Mediterranean forest systems. Springer, pp. 293-327. Turner C.R. and Beaver R.A., 2015. Hypothenemus eruditus Westwood and Hypothenemus seriatus (Eichhoff)(Curculionidae: Scolytinae: Cryphalini) in Britain. The Coleopterist, 24(1), 12-15

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		Vega F.E., Infante F. and Johnson A.J. 2015. The Genus Hypothenemus, with Emphasis on H. hampei, the Coffee Berry Borer. pp. 427 – 494. 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. Vega V.J., Mariño Y.A., Deynes D., Greco E.B., Bright D.E. and Bayman P. 2020. A Beetle in a Haystack: Are There Alternate Hosts of the Coffee Berry Borer (Hypothenemus hampei) in Puerto Rico? Agronomy 2020, 10, 228; doi:10.3390/agronomy10020228 Wood S.L. 1954. Bark Beetles of the Genus Carphoborus Eichhoff (Coleoptera: Scolytidae) in North America. The Canadian Entomologist, 86, 502-526. 10.4039/Ent86502-11 Wood S.L. 2007. Bark and Ambrosia Beetles of South America (Coleoptera: Scolytidae). Monte L. Bean Life Science Museum, Brigham Young University, Provo, Utah
14.	**Conclusions**	This quick scan was prompted by the finding of *Hypothenemus* species (possibly four) in a Dutch greenhouse company that import and trade (sub)tropical plants. *Hypothenemus* spp. are not native to Europe and all non-European Scolytinae species are EU quarantine pests (listed 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 quick scan was performed to assess if the *Hypothenemus* species found meets the criteria of an EU quarantine pest. The *Hypothenemus* species found could not be identified to the species level but were not one of the two *Hypothenemus* species, *H. hampei* and *H. obsurus*, that are known to cause economic impacts in their current area of distribution. Most *Hypothenemus* species are not known to cause economic impacts. Therefore, it cannot be concluded that the organisms 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.