



Quick scan for *Carmenta foraseminis*

National Plant Protection Organization, the Netherlands

Quick scan number: QS2023ENT003

Quick scan date: 1 September 2023

No.	Question	Quick scan answer for <i>Carmenta foraseminis</i>
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? <i>Add picture of organism/damage if available and publication allowed.</i>	<i>Carmenta foraseminis</i> (Busck) Eichlin (Lepidoptera: Sesiidae), the cocoa pod borer/cocoa fruit borer.
2.	What prompted this quick scan? <i>Organism detected in produce for import, export, in cultivation, nature, mentioned in publications, e.g. EPPO alert list, etc.</i>	This Quicksan was prompted by the request of an organisation to import the organism for research purposes.
3.	What is the risk assessment area?	The risk assessment area is the territory of the European Union (EU 27)
4.	What is the current area of distribution?	Panama, Colombia, Venezuela, Brazil (Benassi <i>et al.</i> , 2013; Eichlin, 1995)
5.	What are the host plants?	<i>Gustavia angustifolia</i> , <i>G. superba</i> , <i>Eschweilera</i> sp. (Lecythidaceae) and <i>Theobroma cacao</i> (Sterculiaceae) (Eichlin, 1995).
6.	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? <i>Yes/no + plant species on which damage has been reported + short description of symptoms.</i>	Yes. <i>Direct damage</i> to the fruit pod and seeds: newly hatched larvae burrow into the cocoa fruit where they feed on various tissues and produce excreta. The entry hole is small and often heals up with epicarp tissue which makes the fruit appear undamaged/unaffected. <i>Indirect damage</i> : adults exit the pods, leaving a larger opening behind which allows pathogens such as fungal spores to enter the damaged pod to further

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	<i>Please indicate also when the organism is otherwise harmful (e.g. predator, human/veterinary pathogen vector, etc.).</i>	damage the pod, causing significant losses (Sotomayor-Parian <i>et al.</i> , 2018). Similar damage is observed in fallen fruits and seeds of <i>Gustavia superba</i> (Harms <i>et al.</i> , 1995).
7.	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)	<ul style="list-style-type: none"> a. Establishment in commercial greenhouses is assessed to be unlikely. Host plants may be present in greenhouses in NL but are expected to be there only during short times before being sold. b. Establishment outdoors is very unlikely. The known host plants do not grow outdoors in NL or only incidentally during summer and the climate is unlikely to be suitable for <i>C. foraseminis</i> that is only known to be present in tropical areas (see below question 8). c. Cocoa plants in tropical greenhouses such as those present in zoos and botanical gardens may possibly sustain a (temporary) local population. Other host plants of <i>C. foraseminis</i> may also be present in tropical greenhouses and may also sustain a local population.
8.	Assess the probability of establishment in the EU (i.e. the suitability of the environment for establishment).	<p>Establishment outdoors in the EU is assessed to be unlikely because host plants are absent or only incidentally present and the climate seems unfavourable.</p> <p>Host plants Cocoa is not known to be cultivated as a crop in the EU (Voora <i>et al.</i>, 2019). Cocoa plants are, however, present in (some) tropical greenhouses (see 7.c). <i>Gustavia</i> species (including <i>angustifolia</i> and <i>superba</i>) are being sold as ornamental plants in the EU (see e.g. Krebs, 2023) and are possibly grown in private gardens and in tropical greenhouses (see 7.c). No information has been found on the presence of <i>Eschweilera</i> sp. in the EU. In tropical greenhouses where host plants are present, the species may possibly establish.</p> <p>Climate Thus far, <i>C. foraseminis</i> is known to occur exclusively in tropical climates (Köppen-Geiger classification Aw-Af) which are not present in the EU (Rubel <i>et al.</i>, 2010).</p>
9.	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)?	Not assessed due to the low likelihood of establishment.
10.	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?	Not applicable
11.	Has the organism been detected on/in a product other than plants for planting (e.g. cut flowers, fruit, vegetables)? <i>If "no", go to question 12</i>	No

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12.	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)? <i>Only to be answered in case of an interception or a find.</i>	Not applicable
13.	Additional remarks	
14.	References	<p>Benassi, V., Souza, C., Valente, F., & Lenzi, J. (2013). <i>Carmenta foraseminis</i> (Lepidoptera: Sesiidae), nova broca de frutos de cacau no Brasil. <i>Revista de Agricultura</i>, 88(1), 70-75.</p> <p>Eichlin, T. D. (1995). A new Panamanian clearwing moth (Sesiidae: Sesiinae). <i>Journal of the Lepidopterists' Society</i>, 49(1), 39-42.</p> <p>Harms, K. E., & Aiello, A. (1995). Seed-boring by tropical clearwing moths (Sesiidae): aberrant behavior or widespread habit? <i>Journal of the Lepidopterists' Society</i>.</p> <p>Krebs, P. (2023). Sunshine seeds - <i>Gustavia angustifolia</i>. Retrieved from https://www.sunshine-seeds.de/product_info.php?products_id=52730&language=en</p> <p>Rubel, F., & Kotteck, M. (2010). Observed and projected climate shifts 1901-2100 depicted by world maps of the Köppen-Geiger climate classification. <i>Meteorologische Zeitschrift</i>, 19, 135-141. doi:10.1127/0941-2948/2010/0430</p> <p>Sotomayor-Parian, R. M., & Soto-Cordova, M. M. (2018, 28-30 Nov. 2018). <i>A New Path to Predict Susceptibility of Cocoa Pod Against Carmenta foraseminis (Busck) Eichlin Using a Mathematical Model</i>. Paper presented at the 2018 Congreso Argentino de Ciencias de la Informática y Desarrollos de Investigación (CACIDI).</p> <p>Voora, V., Bermúdez, S., & Larrea, C. (2019). <i>Global market report: Cocoa</i>: JSTOR.</p>
15.	Conclusions	This Quicksan was prompted by the request of an organisation to import <i>Carmenta foraseminis</i> for research purposes. <i>C. foraseminis</i> is not known to be present in the EU. The organism is unlikely to establish in the EU except in tropical greenhouses where <i>Gustavia angustifolia</i> , <i>G. superba</i> , <i>Eschweilera</i> sp. (Lecythidaceae) or <i>Theobroma cacao</i> is present.
16.	Follow-up measures	None: <i>C. foraseminis</i> may be imported and used for research purposes without official requirements.