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## Commodity risk assessment of *Robinia pseudoacacia* plants from Turkey

EFSA Panel on Plant Health (PLH),

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### Abstract

The European Commission requested the EFSA Panel on Plant Health to prepare and deliver risk assessments for commodities listed in Commission Implementing Regulation EU/2018/2019 as 'High risk plants, plant products and other objects'. This Scientific Opinion covers plant health risks posed by bare rooted and potted plants of *Robinia pseudoacacia* that are imported from Turkey, taking into account the available scientific information, including the technical information provided by the Turkish NPPO. The relevance of any pest for this opinion was based on evidence following defined criteria. Three species, the EU-quarantine pests *Anoplophora chinensis* and *Lopholeucapsis japonica*, and the EU non-regulated pest *Pochazia shantungensis* fulfilled all relevant criteria and were selected for further evaluation. For these pests, the risk mitigation measures proposed in the technical dossier from Turkey were evaluated taking into account the possible limiting factors. For these pests, an expert judgement is given on the likelihood of pest freedom taking into consideration the risk mitigation measures acting on the pest, including uncertainties associated with the assessment. The estimated degree of pest freedom varies among the pests evaluated, with *L. japonica* being the pest most frequently expected on the imported plants. The Expert Knowledge Elicitation indicated, with 95% certainty, that between 9,521 and 10,000 plants per 10,000 would be free of *L. japonica*.

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## 1. Introduction

### 1.1. Background and Terms of Reference as provided by European Commission

#### 1.1.1. Background

The new Plant Health Regulation (EU) 2016/2031<sup>1</sup>, on the protective measures against pests of plants, has been applied from December 2019. Provisions within the above Regulation are in place for the listing of 'high risk plants, plant products and other objects' (Article 42) on the basis of a preliminary assessment, and to be followed by a commodity risk assessment. A list of 'high risk plants, plant products and other objects' has been published in (EU) 2018/2019<sup>2</sup>. Scientific opinions are therefore needed to support the European Commission and the Member States in the work connected to Article 42 of Regulation (EU) 2016/2031, as stipulated in the terms of reference.

#### 1.1.2. Terms of Reference

In view of the above and in accordance with Article 29 of Regulation (EC) No 178/2002<sup>3</sup>, the Commission asks EFSA to provide scientific opinions in the field of plant health.

In particular, EFSA is expected to prepare and deliver risk assessments for commodities listed in the relevant Implementing Act as "High risk plants, plant products and other objects". Article 42, paragraphs 4 and 5, establishes that a risk assessment is needed as a follow-up to evaluate whether the commodities will remain prohibited, removed from the list and additional measures will be applied or removed from the list without any additional measures. This task is expected to be on-going, with a regular flow of dossiers being sent by the applicant required for the risk assessment.

Therefore, to facilitate the correct handling of the dossiers and the acquisition of the required data for the commodity risk assessment, a format for the submission of the required data for each dossier is needed.

Furthermore, a standard methodology for the performance of "commodity risk assessment" based on the work already done by Member States and other international organizations needs to be set.

In view of the above and in accordance with Article 29 of Regulation (EC) No 178/2002, the Commission asks EFSA to provide scientific opinion in the field of plant health for *Robinia pseudoacacia* from Turkey taking into account the available scientific information, including the technical dossier provided by Turkey.

### 1.2. Interpretation of the Terms of Reference

The EFSA Panel on Plant Health (hereafter referred to as 'the Panel') was requested to conduct a commodity risk assessment of *R. pseudoacacia* from Turkey following the Guidance on commodity risk assessment for the evaluation of high-risk plant dossiers (EFSA PLH Panel, 2019).

The EU quarantine pests that are regulated as a group in the Commission Implementing Regulation (EU) 2019/2072 were considered and evaluated separately at species level.

Annex II of Implementing Regulation (EU) 2019/2072 lists certain pests as non-European populations or isolates or species. These pests are considered regulated quarantine pests. Consequently, the respective European populations, or isolates, or species are non-regulated pests.

Annex VII of the same Regulation, in certain cases (e.g. point 32) makes reference to the following countries that are excluded from the obligation to comply with specific import requirements for those non-European populations, or isolates, or species: Albania, Andorra, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Canary Islands, Faeroe Islands, Georgia, Iceland, Liechtenstein, Moldova,

<sup>1</sup> Regulation (EU) 2016/2031 of the European Parliament and of the Council of 26 October 2016 on protective measures against pests of plants, amending Regulations (EU) 228/2013, (EU) 652/2014 and (EU) 1143/2014 of the European Parliament and of the Council and repealing Council Directives 69/464/EEC, 74/647/EEC, 93/85/EEC, 98/57/EC, 2000/29/EC, 2006/91/EC and 2007/33/EC. OJ L 317, 23.11.2016, pp. 4–104.

<sup>2</sup> Commission Implementing Regulation (EU) 2018/2019 of 18 December 2018 establishing a provisional list of high risk plants, plant products or other objects, within the meaning of Article 42 of Regulation (EU) 2016/2031 and a list of plants for which phytosanitary certificates are not required for introduction into the Union, within the meaning of Article 73 of that Regulation C/2018/8877. OJ L 323, 19.12.2018, pp. 10–15.

<sup>3</sup> Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety. OJ L 31, 1.2.2002, pp. 1–24.

Monaco, Montenegro, North Macedonia, Norway, Russia (only the following parts: Central Federal District (Tsentralny federalny okrug), Northwestern Federal District (SeveroZapadny federalny okrug), Southern Federal District (Yuzhny federalny okrug), North Caucasian Federal District (Severo-Kavkazsky federalny okrug) and Volga Federal District (Privolzhsky federalny okrug), San Marino, Serbia, Switzerland, Turkey, Ukraine and United Kingdom (except Northern Ireland).<sup>4</sup> Those countries are historically linked to the reference to 'non-European countries' existing in the previous legal framework, Directive 2000/29/EC. Consequently, for those countries, any pests identified, which are listed as non-European species in Annex II of Implementing Regulation (EU) 2019/2072 should be investigated as any other non-regulated pest.

Pests listed as 'Regulated Non-Quarantine Pest' (RNQP) in Commission Implementing Regulation (EU) 2019/2072 were not considered for further evaluation, in line with a letter from European Commission from 24 October 2019, Ref. Ares (2019)6579768 – 24/10/2019, on Clarification on EFSA mandate on High Risk Plants.

In its evaluation the Panel:

- Checked whether the information in the technical dossier (hereafter referred to as 'the Dossier') provided by the applicant (Republic of Turkey, Ministry of Agriculture and Forestry, National Plant Protection Organization - Turkish NPPO) was sufficient to conduct a commodity risk assessment. When necessary, additional information was requested to the applicant.
- Selected the relevant Union quarantine pests and protected zone quarantine pests (as specified in Commission Implementing Regulation (EU) 2019/2072<sup>5</sup>, hereafter referred to as 'EU quarantine pests') and other relevant pests present in Turkey and associated with the commodity.
- Did not assess the effectiveness of measures for Union quarantine pests for which specific measures are in place for the import of the commodity from the specific country in Commission Implementing Regulation (EU) 2019/2072 and/or in the relevant legislative texts for emergency measures and provided that the specific country is in the scope of those emergency measures. The assessment was restricted to whether or not the applicant country applies those measures.
- Assessed the effectiveness of the measures described in the dossier for those Union quarantine pests for which no specific measures are in place for the import of the commodity from the specific applicant country and other relevant pests present in applicant country and associated with the commodity.

Risk management decisions are not within EFSA's remit. Therefore, the Panel provided a rating based on expert judgement regarding the likelihood of pest freedom for each relevant pest given the risk mitigation measures proposed by the Turkish NPPO.

## 2. Data and methodologies

### 2.1. Data provided by the Turkish NPPO

The Panel considered all the data and information (hereafter called 'the Dossier') provided by the Turkish NPPO on 15 June 2020, including the additional information provided by the Turkish NPPO on 27 November 2020, 18 December 2020 and 15 February 2021, after EFSA's request. The Dossier is managed by EFSA.

The structure and overview of the Dossier is shown in Table 1. The number of the relevant section is indicated in the opinion when referring to a specific part of the Dossier.

<sup>4</sup> In accordance with the Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy Community, and in particular Article 5(4) of the Protocol on Ireland/Northern Ireland in conjunction with Annex 2 to that Protocol, for the purposes of this Opinion, references to Member States include the United Kingdom in respect of Northern Ireland.

<sup>5</sup> Commission Implementing Regulation (EU) 2019/2072 of 28 November 2019 establishing uniform conditions for the implementation of Regulation (EU) 2016/2031 of the European Parliament and the Council, as regards protective measures against pests of plants, and repealing Commission Regulation (EC) No 690/2008 and amending Commission Implementing Regulation (EU) 2018/2019, OJ L 319, 10.12.2019, p. 1–279.

**Table 1:** Structure and overview of the Dossier

Dossier section	Overview of contents	Filename
1.0	Technical dossier on <i>Robinia pseudoacacia</i> (complete document)	EFSA_Dossier-Q-2020-00091_Turkey_Robinia_pseudoacacia.pdf
2.0	Additional information provided by the Turkish NPPO on date 27 November 2020	EFSA_Dossier-Q-2020-00091_Turkey_Robinia_pseudoacacia - Answers to additional questions.pdf
3.0	Additional information on the eradication programme of <i>Anoplophora chinensis</i> on date 18 December 2020	EFSA_Dossier-Q-2020-00091_Turkey_Robinia_pseudoacacia - Anoplophora Report- Robinia pseudoacacia_18_12_2020.pdf
4.0	Additional information on the status of <i>Anoplophora chinensis</i> in Istanbul province on date 15 February 2021	EFSA_Dossier-Q-2020-00091_Turkey_Robinia_pseudoacacia - Additional information about <i>Anoplophora chinensis</i> in Istanbul_15_02_2021.pdf

The data and supporting information provided by the Turkish NPPO formed the basis of the commodity risk assessment.

The databases shown in Table 2 and the resources and references listed below are the main sources used by the Turkish NPPO to compile the Dossier (details on literature searches can be found in the Dossier Section 4):

**Table 2:** Database sources used in the literature searches by the Turkish NPPO

Acronym/ short title	Database name and service provider	URL of database	Justification for choosing database
PPTI	Name: Plant Protection Technical Instructions Provider: Turkish NPPO	<a href="https://www.tarimorman.gov.tr/TAGEM/BeIgeler/Bitki%20Zarar%C4%B1lar%C4%B1%20Zirai%20M%C3%BCadele%20Teknik%20Taliimatlar%C4%B1.pdf">https://www.tarimorman.gov.tr/TAGEM/BeIgeler/Bitki%20Zarar%C4%B1lar%C4%B1%20Zirai%20M%C3%BCadele%20Teknik%20Taliimatlar%C4%B1.pdf</a> <a href="https://www.tarimorman.gov.tr/TAGEM/BeIgeler/Bitki%20Hastal%C4%B1klar%C4%B1%20ve%20Yabanc%C4%B1%20Ot%20Zirai%20M%C3%BCadele%20Teknik%20Taliimatlar%C4%B1.pdf">https://www.tarimorman.gov.tr/TAGEM/BeIgeler/Bitki%20Hastal%C4%B1klar%C4%B1%20ve%20Yabanc%C4%B1%20Ot%20Zirai%20M%C3%BCadele%20Teknik%20Taliimatlar%C4%B1.pdf</a>	These instructions are prepared regarding pests in Turkey, which cause damages on their hosts economically. They cover total of 644 pests including bacteria, phytoplasmas, fungi, insects, viruses and viroids.
CABI ISC	CABI Invasive Species Compendium Provider: CAB International	<a href="https://www.cabi.org/ISC">https://www.cabi.org/ISC</a>	EFSA recommendation
EPPO GD	EPPO Global Database Provider: European and Mediterranean Plant Protection Organization	<a href="https://gd.eppo.int/">https://gd.eppo.int/</a>	EFSA recommendation
Plant Protection Bulletin	Plant Protection Bulletin published by the Plant Protection Central Research Institute	<a href="https://dergipark.org.tr/en/pub/bitkorb">https://dergipark.org.tr/en/pub/bitkorb</a>	The journal is published four times a year with original research articles in English or Turkish languages on plant protection and health.
Fauna Europaea	Name: Fauna Europaea Provider: Museum für Naturkunde Leibniz-Institut für Evolutions- und Biodiversitätsforschung	<a href="https://fauna-eu.org/">https://fauna-eu.org/</a>	Fauna Europaea is Europe's main zoological taxonomic index. The database lists scientific names and distributions of all living, currently known, multicellular, European land and fresh water animal species



## Other resources

National and EU legislations were used to determine pest status in Turkey and in EU. The regulations used are below:

- Regulation on the Registration of Plant Passport System and Operators, (<https://kms.kaysis.gov.tr/Home/Goster/40074>).
- Plant Quarantine Regulation, ([https://www.ippc.int/static/media/files/reportingobligation/2017/02/20/Regulation\\_on\\_Plant\\_Quarantine\\_-Turkey\\_2016.pdf](https://www.ippc.int/static/media/files/reportingobligation/2017/02/20/Regulation_on_Plant_Quarantine_-Turkey_2016.pdf)).
- Plant Health Standards Instruction in Fruit and Grapevine Saplings and Production Materials ([https://www.tarimorman.gov.tr/Belgeler/Mevzuat/Talimatlar/BUGEM/Bitki\\_Sa%C4%9F%C4%B1%C4%9F%C4%B1\\_Talimat%C4%B1.pdf](https://www.tarimorman.gov.tr/Belgeler/Mevzuat/Talimatlar/BUGEM/Bitki_Sa%C4%9F%C4%B1%C4%9F%C4%B1_Talimat%C4%B1.pdf)).
- Implementing Regulation on Certification and Marketing of Fruit Saplings and Production Materials (<https://www.mevzuat.gov.tr/Metin.Aspix?MevzuatKod=7.5.13182&MevzuatIliski=0&sourceXmlSearch=meyve%20fidan%C4%B1>).
- Regulation on Authorization and Inspection in Seed Services, (<https://www.mevzuat.gov.tr/Metin.Aspix?MevzuatKod=7.5.13052&MevzuatIliski=0&sourceXmlSearch=tohumculuk>).
- Seed Services Application Instruction.
- Seed Export Application Circular.
- Council Directive 2000/29/EC of 8 May 2000 on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community (<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32000L0029>).
- Instructions of sampling.
- Regulation on Authorisation, Inspection and Forest Plant Passport in the Forest Plant Seed Marketing (<https://www.mevzuat.gov.tr/Metin.Aspix?MevzuatKod=7.5.22699&MevzuatIliski=0&sourceXmlSearch=orman%20bitki%20pasaportu>).
- Regulation on The Trade of Forest Growing Materials (1999/105/Ec) (<https://www.mevzuat.gov.tr/Metin.Aspix?MevzuatKod=7.5.9882&MevzuatIliski=0&sourceXmlSearch=orman%20yeti%C5%9Ftime>).

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## 2.2. Literature searches performed by EFSA

Literature searches were undertaken by EFSA to complete a list of pests potentially associated to *R. pseudoacacia* in Turkey. Two searches were combined: (i) a general search to identify pests of *Robinia*, particularly *R. pseudoacacia*, in different databases; and (ii) a tailored search to identify whether these pests are present or not in Turkey. The searches were launched on the 25 August 2020 and concluded on 27 August 2020. No language, date or document type restrictions were applied in the search strategy.

The Panel used the databases indicated in Table 3 to compile the list of pests associated with *Robinia*. As for Web of Science, the literature search was performed using a specific, ad hoc established search string (see Appendix B). The search strategy used for Web of Science Databases was designed combining common names for pests and diseases, terms describing symptoms of plant diseases and the scientific and English common names of the commodity. All pests already retrieved using the other databases were removed from the search terms to be able to reduce the number of records to be screened. The string was run in 'All Databases' with no range limits for time or language filters.

**Table 3:** Databases used by EFSA for the compilation of the pest list associated to the genus *Robinia*

Database	Platform/Link
Aphids on World Plants	<a href="http://www.aphidsonworldsplants.info/C_HOSTS_AAIntro.htm">http://www.aphidsonworldsplants.info/C_HOSTS_AAIntro.htm</a>
CABI Crop Protection Compendium	<a href="https://www.cabi.org/cpc/">https://www.cabi.org/cpc/</a>
Database of Insects and their Food Plants	<a href="http://www.brc.ac.uk/dbif/hosts.aspx">http://www.brc.ac.uk/dbif/hosts.aspx</a>
Database of the World's Lepidopteran Hostplants	<a href="https://www.nhm.ac.uk/our-science/data/hostplants/search/index.dsml">https://www.nhm.ac.uk/our-science/data/hostplants/search/index.dsml</a>
EPP0 Global Database	<a href="https://gd.eppo.int/">https://gd.eppo.int/</a>
EUROPHYT	<a href="https://webgate.ec.europa.eu/europhyt/">https://webgate.ec.europa.eu/europhyt/</a>
Leaf-miners	<a href="http://www.leafmines.co.uk/html/plants.htm">http://www.leafmines.co.uk/html/plants.htm</a>
Nemaplex	



Database	Platform/Link
	<a href="http://nemaplex.ucdavis.edu/Nemabase2010/PlantNematodeHostStatusDDQuery.aspx">http://nemaplex.ucdavis.edu/Nemabase2010/PlantNematodeHostStatusDDQuery.aspx</a>
Plant Viruses Online	<a href="http://bio-mirror.im.ac.cn/mirrors/pvo/vide/famindex.htm">http://bio-mirror.im.ac.cn/mirrors/pvo/vide/famindex.htm</a>
International Committee on Taxonomy of Viruses (ICTV) - Master Species List	<a href="https://talk.ictvonline.org/files/master-species-lists/m/msl/9601">https://talk.ictvonline.org/files/master-species-lists/m/msl/9601</a>
Scalenet	<a href="http://scalenet.info/associates/">http://scalenet.info/associates/</a>
Spider Mites Web	<a href="https://www1.montpellier.inra.fr/CBGP/spmweb/advanced.php">https://www1.montpellier.inra.fr/CBGP/spmweb/advanced.php</a>
USDA ARS Fungi Database	<a href="https://nt.ars-grin.gov/fungaldatabases/fungushost/fungushost.cfm">https://nt.ars-grin.gov/fungaldatabases/fungushost/fungushost.cfm</a>
Index Fungorum	<a href="http://www.indexfungorum.org/Names/Names.asp">http://www.indexfungorum.org/Names/Names.asp</a>
Mycobank	<a href="https://www.mycobank.com">https://www.mycobank.com</a>
Web of Science: All Databases (Web of Science Core Collection, CABI: CAB Abstracts, BIOSIS Citation Index, Chinese Science Citation Database, Current Contents Connect, Data Citation Index FSTA, KCI-Korean Journal Database, Russian Science Citation Index, MEDLINE SciELO Citation Index, Zoological Record)	<a href="https://www.webofknowledge.com">https://www.webofknowledge.com</a>
World Agroforestry	<a href="http://www.worldagroforestry.org/treedb2/speciesprofile.php?Spid=1749">http://www.worldagroforestry.org/treedb2/speciesprofile.php?Spid=1749</a>
Catalog of the Cecidomyiidae (Diptera) of the world	<a href="https://www.ars.usda.gov/ARSUserFiles/80420580/Gagne_2014_World_Cecidomyiidae_Catalog_3rd_Edition.pdf">https://www.ars.usda.gov/ARSUserFiles/80420580/Gagne_2014_World_Cecidomyiidae_Catalog_3rd_Edition.pdf</a>
Catalog of the Eriophyoidea (Acarina: Prostigmata) of the world.	<a href="https://www.cabi.org/isc/abstract/19951100613">https://www.cabi.org/isc/abstract/19951100613</a>
Global Biodiversity Information Facility (GBIF)	<a href="https://www.gbif.org/">https://www.gbif.org/</a>

Additional searches, limited to retrieve documents, were run when developing the opinion. The available scientific information, including previous EFSA opinions on the relevant pests and diseases (see pest data sheets in Appendix A) and the relevant literature and legislation (e.g. Regulation (EU) 2016/2031; Commission Implementing Regulations (EU) 2018/2019; (EU) 2018/2018 and (EU) 2019/2072) were taken into account.

## 2.3. Methodology

When developing the Opinion, the Panel followed the EFSA Guidance on commodity risk assessment for the evaluation of high-risk plant dossiers (EFSA PLH Panel, 2019).

In the first step, pests potentially associated with the commodity in the country of origin (EU-regulated pests and other pests) that may require risk mitigation measures were identified. The EU non-regulated pests not known to occur in the EU were selected based on evidence of their potential impact in the EU. After the first step, all the relevant pests that may need risk mitigation measures were identified.

In the second step, the proposed risk mitigation measures for each relevant pest were evaluated in terms of efficacy or compliance with EU requirements as explained in Section 1.2.

A conclusion on the likelihood of the commodity being free from each of the relevant pest was determined and uncertainties identified using expert judgements.

Pest freedom was assessed by estimating the number of infested/infected plants out of 10,000 exported plants.

### 2.3.1. Commodity data

Based on the information provided by the Turkish NPPO the characteristics of the commodity are summarised.

### 2.3.2. Identification of pests potentially associated with the commodity

To evaluate the pest risk associated with the importation of *R. pseudoacacia* from Turkey a pest list was compiled. The pest list is a compilation of all identified plant pests associated with *R. pseudoacacia* based on information provided in the Dossier Section 4.0 and on searches performed by the Panel.

The pest list (see Microsoft Excel<sup>®</sup> file in Appendix D) is a document that includes pests that use the host plant at genus level (*Robinia* spp.), retrieved from EPPO Global Database, CABI Crop Protection Compendium. Other databases were consulted at plant species level. An overview of the consulted sources is listed in Table 3.

The search strategy used for Web of Science Databases was designed combining common names for pests and diseases, terms describing symptoms of plant diseases and the scientific and common English name of the commodity. All of the pests already retrieved using the other databases were removed from the search terms be able to reduce the number of records to be screened.

The established search string is detailed in Appendix B, and was run on 15 November 2019.

The titles and abstracts of the scientific papers retrieved were screened and the pests associated with *Robinia* were included in the pest list.

EUROPHYT and TRACES were investigated by searching for the interceptions associated to commodities imported from Turkey, at species and genus level, from 1995 to present.

The evaluation of the compiled pest list was carried out in two steps: first, the relevance of the EU-quarantine pests was evaluated (Section 4.1); second, the relevance of any other plant pest was evaluated (Section 4.2).

For those Union quarantine pests for which specific measures are in place for the import of the commodity from Turkey in Commission Implementing Regulation (EU) 2019/2072, the assessment was restricted to whether Turkey applies those measures. The effectiveness of those measures was not assessed.

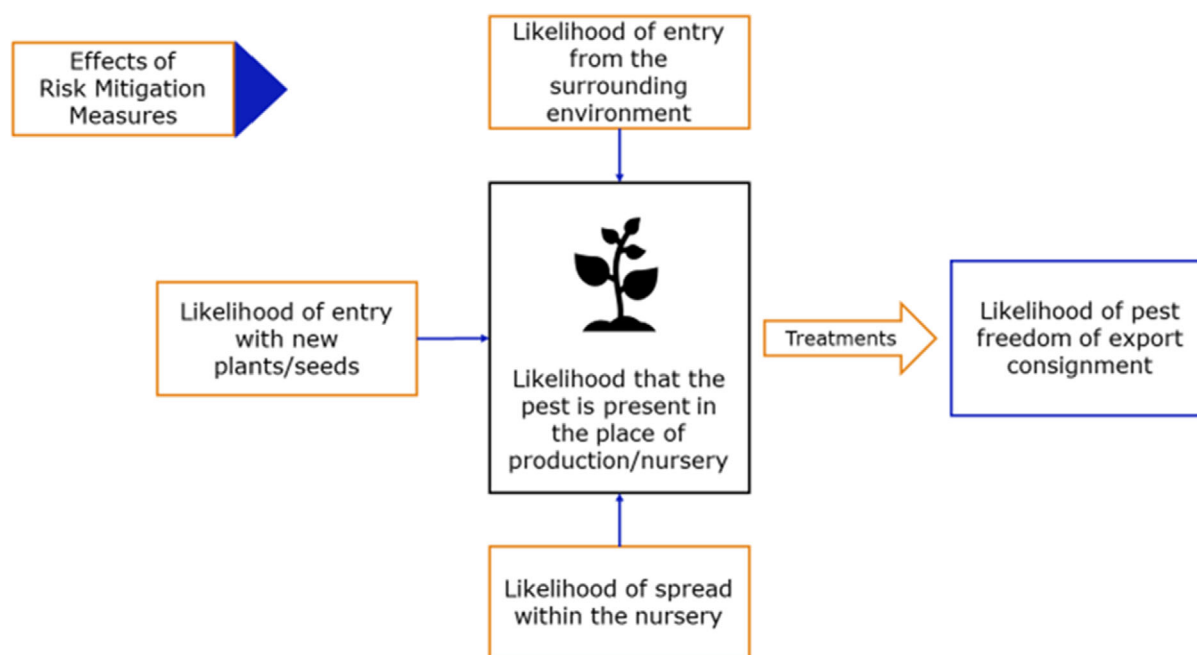
Pests for which limited information was available on one or more criteria used to identify them as relevant for this opinion, e.g. on potential impact, are listed in Appendix C (List of pests that can potentially cause an effect not further assessed).

### 2.3.3. Listing and evaluation of risk mitigation measures

The proposed risk mitigation measures were listed and evaluated. When evaluating the likelihood of pest freedom at origin, the following types of potential infection/infestation sources for *R. pseudoacacia* in nurseries and relevant risk mitigation measures were considered (see also Figure 1):

- pest entry from surrounding areas,
- pest entry with new plants/seeds,
- pest spread within the nursery.

The risk mitigation measures adopted in the plant nurseries (as communicated by the Turkish NPPO) were evaluated with Expert Knowledge Elicitation (EKE) according to the Guidance on uncertainty analysis in scientific assessment (EFSA Scientific Committee, 2018).



**Figure 1:** Conceptual framework to assess likelihood that plants are exported free from relevant pests  
Source: EFSA PLH Panel (2019).

Information on the biology, estimates of likelihood of entry of the pest to the nursery and spread within the nursery, and the effect of the measures on a specific pest is summarised in pest data sheets compiled for each pest selected for further evaluation (see Appendix A).

### 2.3.4. Expert Knowledge Elicitation

To estimate the pest freedom of the commodities an Expert Knowledge Elicitation (EKE) was performed following EFSA guidance (Annex B.8 of EFSA Scientific Committee, 2018). The specific question for EKE was defined as follows: 'Taking into account (i) the risk mitigation measures listed in the Dossier, and (ii) other relevant information, how many of 10,000 *R. pseudoacacia* plants (i.e. bare rooted plants or potted plants) will be infested with the relevant pest/pathogen when arriving in the EU?'

The risk assessment uses individual plants as the most suitable unit. The following reasoning is given:

- i) There is no quantitative information available regarding clustering of plants during production.
- ii) For the pests under consideration a cross contamination during transport is not likely.
- iii) Plants will be finally distributed to final consumers by wholesaler and retailers.

The uncertainties associated with the EKE were taken into account and quantified in the probability distribution applying the semi-formal method described in Section 3.5.2 of the EFSA-PLH Guidance on quantitative pest risk assessment (EFSA PLH Panel, 2018). Finally, the results were reported in terms of the likelihood of pest freedom. The lower 5% percentile of the uncertainty distribution reflects the opinion that pest freedom is with 95% certainty above this limit.

The EKE was performed together for bare rooted plants and plants in pots, if the biology of the pest, the production systems and the risk mitigation measures suggested the same likelihood of pest freedom for both commodities.

## 3. Commodity data

### 3.1. Description of the commodity

The commodities to be imported are *R. pseudoacacia* (common name: black locust family: Fabaceae) potted plants and bare rooted plants. Plants are either grafted (with rootstock of the same

species) or not. The age of the plants at the time of export is from 3 to 7 years and the circumference width of the stem ranges from 8–10 cm to 20–25 cm.

- the potted plants are up to 7 years old, generally having circumference width from 14 to 16 cm up to 20–25 cm.
- the bare rooted plants are at least 3 years old, generally having circumference width from 8–10 cm to 14–16 cm.

The bare rooted plants are washed and packed in bags and in boxes (not specified number of plants per bag). The potted plants are loaded individually on trucks (not specified number of plants per truck). According to ISPM 36 (FAO, 2019). The commodities can be classified as 'bare root plants' and 'rooted plants in pots', respectively.

### 3.2. Description of the production areas

The *R. pseudoacacia* plants for export, are grown in open field plant nurseries, members of the Ornamental Plants Growers Union (SÜSBİR) (<http://eng.susbir.org.tr/>).

There is no information on physical separation between areas destined to the domestic production and areas destined to export, as well as separation from other species possibly grown in the same nursery.

The main production areas of *R. pseudoacacia* plants for export are Istanbul, Bursa and Sakarya. Additional production areas are located in Adana, Antalya, Izmir (not shown in Figure 2). Forest nurseries located throughout Turkey are the main provider of 1- to 2-year-old seedlings to the ornamental production growers.



**Figure 2:** Main production areas (indicated in green) in Turkey of *R. pseudoacacia* plants for export (provided by the Turkish NPPO)

### 3.3. Production and handling processes

#### 3.3.1. Growing conditions

Production starts with seeds collected from trees, between October and November. The seeds are subjected to a 'sterilisation' process (no information available on the method used) and sown in trays filled with growing media, in a greenhouse between April and May. Young seedlings are transplanted in larger pots filled with fertilised growing media. The seedlings (1- or 2-year-old) are mainly obtained from forest nurseries, located throughout Turkey, and are subsequently grown in export/producer companies for 1–6 years. All stages of the plants are grown in pots or seed trays. The growing media are a mixture of peat and pumice. However, from the pictures provided in the dossier older plants appear to be grown in soil, a common practice adopted for plants of this size. From those pictures it seems that the pots, at some stages, are in contact with soil. The Panel expresses uncertainty on whether the growing media comply with Annex VII of the Implementing Regulation (EU) 2019/2072.

When the rooting is completed, each plant is supported by bamboo canes to ensure proper trunk formation. Afterwards, trees (of not specified age) are pruned and transplanted into larger pots and brought to open fields.

Bare rooted plants: there is no specific information on the preparation and characteristics of bare rooted plants.

Rootstocks are produced from seeds of *R. pseudoacacia*, however there is no information about the scions (origin, age of the mother plants and proximity of other plant species).

There is limited information provided on any chemical, physical or biological phytosanitary measures adopted during the cultivation period.

### 3.3.2. Source of planting material

The source of propagating material mainly originates from Turkey (90%) and very few of them are imported from European countries as 1-year-old seedlings. Forest nurseries located throughout Turkey are the main provider for the supply of 1- to 2-year-old seedlings to the ornamental production growers.

### 3.3.3. Production cycle

Production starts with seeds collected from selected trees, between October and November. The seeds are sown between April-May. Plants are transplanted once or more times depending on the age of the final product to be traded. No details on the period of transplanting are provided.

### 3.3.4. Pest monitoring during production

Forest nurseries affiliated with the General Directorate of Forestry (not directly exporting/importing nurseries) are inspected by forestry inspectors as a routine work (at least once a month). Forest nurseries are also inspected once a year for phytosanitary requirements by the Provincial Directorate of Agriculture.

Production nurseries are inspected at least once a year, regardless of whether they are exporting or not. In addition, producers submit a declaration every six months of what they produce.

In the production nurseries of ornamentals all plants are inspected visually, and samples are taken from symptomatic plants if necessary. There is no information on the frequency of these inspections. Traded ornamental plants are required to be free from any kind of disease symptoms or pests. No information is provided on actions taken in case a harmful organism is identified in the nursery.

### 3.3.5. Post-harvest processes and export procedure

Bare rooted plants are prepared by washing the root system, placing them in plastic bags, in wooden boxes (as can be derived from the photographs provided). No information is provided on post-harvest processes for potted plants before exporting.

Plants are loaded on trucks for export. The moisture content of the loaded trailer is between 85 and 95%. Trailer temperature is between 2°C and 4°C. However, from the pictures provided it is not clear if the trucks shown can ensure refrigeration. In addition, it is unclear if this refers to potted plants and/or bare rooted plants.

The planned production for export in the EU in 2020 was estimated to be 3,000 plants. The months on which the plants are to be exported to the EU are indicated in Table 4.

**Table 4:** Scheduling of *Robinia* plants planned to be exported (indicated in grey)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Robinia												

## 4. Identification of pests potentially associated with the commodity

The search for potential pests associated to *R. pseudoacacia* resulted in 983 species (see Microsoft Excel<sup>®</sup> file in Appendix D).

#### 4.1. Selection of relevant EU-quarantine pests associated with the commodity

The EU listing of union quarantine pests and protected zone quarantine pests (Commission Implementing Regulation (EU) 2019/2072) is based on assessments concluding that the pests can enter, establish, spread and have potential impact in the EU.

Twelve EU-quarantine species that are reported to use *Robinia* as a host plant were evaluated (Table 5) for their relevance of being included in this opinion.

The relevance of an EU-quarantine pest for this opinion was based on evidence that:

- a) the pest is present in Turkey;
- b) *Robinia* is a host of the pest;
- c) one or more life stages of the pest can be associated with the specified commodity.

Pests that fulfilled all three criteria were selected for further evaluation.

Of the twelve EU-quarantine pest species evaluated, two pests (*Anoplophora chinensis* and *Lopholeucaspis japonica*), present in Turkey and known to use *Robinia* as host and to be associated with the commodity were selected for further evaluation (Table 6).



**Table 5:** Overview of the evaluation of the twelve EU-quarantine pest species known to use *Robinia* as a host plant for their relevance for this Opinion

Number	Pest name according to the EU legislation <sup>(a)</sup>	EPPO code	Group	Presence in Turkey	<i>Robinia</i> confirmed as a host (reference)	Pest can be associated with the commodity <sup>(b)</sup>	Pest relevant for the opinion
<u>1</u>	<i>Anoplophora chinensis</i>	ANOLCN	Insects	Yes	CABI (online)	Yes	Yes
2	<i>Anoplophora glabripennis</i>	ANOLGL	Insects	No	Dossier, CABI (online)		No
<u>3</u>	<i>Euwallacea fornicatus</i>	XYLBFO	Insects	No	EPPO (online)		No
4	<i>Lopholeucaspis japonica</i>	LOPLJA	Insects	Yes	Scalenet	Yes	Yes
5	<i>Phloeotribus liminaris</i> (non-European Scolitinae)	PHLBLI	Insects	No	WoS, Pennacchio et al. (2004)		No
6	<i>Phymatotrichopsis omnivora</i>	PHMPOM	Fungi	No <sup>(c)</sup>	CABI (online)		No
7	<i>Phytophthora ramorum</i>	PHYTRA	Fungi	No	WoS, Tooley and Browning (2009)		No
8	<i>Popillia japonica</i>	POPIJA	Insects	No	EPPO (online)		No
9	Potato virus Y	PVY000	Virus	Yes	Abdalla et al. (2018) <sup>(d)</sup>		No
10	<i>Thaumetopoea processionea</i>	THAUPR	Insects	No	CABI (online)		No
11	<i>Xylella fastidiosa</i>	XYLEFA	Bacteria	No	EPPO (online)		No
12	<i>Xylosandrus germanus</i> (non-European Scolitinae)	XYLBGE	Insects	No	Scholar, Castrillo et al. (2012)		No

(a): Commission Implementing Regulation (EU) 2019/2072.

(b): The question if the pest can be associated with the commodity is evaluated if the previous two questions are answered with 'yes'.

(c): There is one unconfirmed record of *Phymatotrichopsis omnivora* in Turkey (Azaz, 2003) in a non-agricultural area in Bird Paradise National Park.(Bird Lake).However, the presence of the pathogen was only determined in the soil, with no record of disease in any cultivated plant. In addition, no clear information was given on how the species was identified and was not supported by DNA-based methods.

(d): Host status not confirmed. Robinia was used as test plant.

#### 4.2. Selection of other relevant pests (non-regulated in the EU) associated with the commodity

The information provided by the Turkish NPPO, integrated with the search EFSA performed, was evaluated in order to assess whether there are other potentially relevant pests of *Robinia* present in the country of export. For these potential pests that are not regulated in the EU, pest risk assessment information on the probability of introduction, establishment, spread and impact is usually lacking. Therefore, these non-regulated pests that are potentially associated with *Robinia* were also evaluated to determine their relevance for this opinion based on evidence that:

- a) the pest is present in Turkey;
- b) the pest (i) is absent or (ii) has a limited distribution in the EU and it is under official control at least in one of the MSs where it is present;
- c) *Robinia* is a host of the pest;
- d) one or more life stages of the pest can be associated with the specified commodity;
- e) the pest may have an impact in the EU.

Pests that fulfilled all five criteria were selected for further evaluation.

Based on the information collected, 953 potential pests not regulated in the EU known to be associated with *Robinia* were evaluated for their relevance to this opinion. Species were excluded from further evaluation when at least one of the conditions listed above (a-e) was not met. Details can be found in the Appendix D (Microsoft Excel<sup>®</sup> file). Of the evaluated EU non-regulated pests, one insect (*Pochazia shantungensis*), was selected for further evaluation because it met all of the selection criteria. More information on this pest species can be found in the pest datasheets (Appendix A).

#### 4.3. Overview of interceptions

Data on the interception of harmful organisms on plants of *Robinia* can provide information on some of the organisms that can be present on *Robinia* plants in trade. According to EUROPHYT online and TRACES NT online, (accessed on 12 February 2021) there were no records of interceptions for plants for planting of *Robinia* from Turkey (1995 – 12/2/2021).

#### 4.4. List of potential pests not further assessed

From the pests not selected for further evaluation, the Panel highlighted five species that can potentially have an impact (see Appendix C) but for which the currently available evidence does not provide reasons for further evaluation in this opinion. The detailed reason is provided for each species in Appendix C.

#### 4.5. Summary of pests selected for further evaluation

The three pests identified to be present in Turkey and having potential for association with *Robinia* destined for export are listed in Table 7. The efficacy of the risk mitigation measures applied to the commodity was evaluated for these selected pests.

**Table 6:** List of relevant pests selected for further evaluation

Number	Current scientific name	EPPO code	Name used in the EU legislation	Taxonomic information	Group	Regulatory status
1	<i>Anoplophora chinensis</i>	ANOLCN	<i>Anoplophora chinensis</i>	Cerambycidae	Insects	EU Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072
2	<i>Lopholeucaspis japonica</i>	LOPLJA	<i>Lopholeucaspis japonica</i>	Diaspididae	Insects	EU Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072
3	<i>Pochazia shantungensis</i>	POCZSH	N/A	Ricaniidae	Insects	Not regulated in EU

## 5. Risk mitigation measures

For each selected pest (Table 6) the Panel assessed the possibility that it could be present in nurseries producing *R. pseudoacacia* and assessed the probability that pest freedom of a consignment is achieved by the proposed risk mitigation measures acting on the pest under evaluation.

The information used in the evaluation of the efficacy of the risk mitigation measures is summarised in a pest data sheet (see Appendix A).

### 5.1. Possibility of pest presence in the export nurseries

For each selected pest (Table 6) the Panel evaluated the likelihood that the pest could be present in a *R. pseudoacacia* nursery by evaluating the possibility that *R. pseudoacacia* in the export nursery are infested either by:

- introduction of the pest from the environment surrounding the nursery
- introduction of the pest with new plants/seeds
- spread of the pest within the nursery.

### 5.2. Risk mitigation measures proposed

With the information provided by the Turkish NPPO (Dossier sections 3 and 5), the Panel summarised the risk mitigation measures (see Table 7) that are currently applied in the production nurseries.

**Table 7:** Overview of currently applied risk mitigation measures for *R. pseudoacacia* plants designated for export to the EU from Turkey

	Risk mitigation measure	Implementation in Turkey
1	Registration of the nursery and Phytosanitary management	Forest nurseries (producing young plants) are officially registered and inspected at least once a year with an unknown monitoring intensity. All nurseries producing ornamental plants are required to be a member of the ornamental plant grower union in Turkey and inspected at least once a year with an unknown monitoring intensity. A plant passport or export certificate is issued.
2	Physical protection	Some production of the early stages of plants, but not of the older ones, may take place in production places with netting.
3	Pest monitoring and inspections by the nursery staff during the production process	Nurseries are officially inspected at least once a year and for issuing the export certificate. There are no targeted inspections specified in the dossier for the actionable pests. There are guidelines available for detection of pests in agricultural crops (technical instructions for plant pests in agricultural crops – link in Dossier, Section 1).
4	Pesticide treatment	There is a database for registered insecticides in Turkey. There are no products registered for Robinia. There are guidelines available for the management of pests in agricultural crops (technical instructions for plant pests in agricultural crops – link in Dossier, Section 1).
5	Surveillance	There are no targeted inspections specified in the dossier for the actionable pests.
6	Washing of roots	Soil is removed by washing the roots of bare rooted plants.
7	Export inspection	Prior to export the consignment is visually inspected.

### 5.3. Evaluation of the current measures for the selected pests including uncertainties

For each pest, the relevant risk mitigation measures acting on the pest were identified. Any limiting factors on the efficacy of the measures were documented. All the relevant information including the related uncertainties deriving from the limiting factors used in the evaluation are summarised in a pest datasheet provided in Appendix A.

Based on this information, for each relevant pest, an expert judgement has been given for the likelihood of pest freedom of commodities taking into consideration the risk mitigation measures acting on the pest and their combination.

An overview of the evaluation of each relevant pest is given in the sections below (Sections 5.3.1–5.3.3). The outcome of EKE on pest freedom after the evaluation of the proposed risk mitigation measures is summarised in the Section 5.3.4.

### 5.3.1. Overview of the evaluation of *Anoplophora chinensis*

Rating of the likelihood of pest freedom	Very frequently pest free (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest free plants	<b>9,813</b> out of 10,000 plants	<b>9,850</b> out of 10,000 plants	<b>9,889</b> out of 10,000 plants	<b>9,930</b> out of 10,000 plants	<b>9,974</b> out of 10,000 plants
Proportion of infested plants <sup>(a)</sup>	<b>26</b> out of 10000 plants	<b>70</b> out of 10000 plants	<b>111</b> out of 10000 plants	<b>150</b> out of 10000 plants	<b>187</b> out of 10000 plants
Summary of the information used for the evaluation	<p><b>Possibility that the pest could become associate with the commodity</b>  <i>Anoplophora chinensis</i> is a polyphagous woodboring beetle that attacks living trees. <i>A. chinensis</i> is reported to be 'transient and under eradication' in Turkey. The pest has been detected in public lanes, public landscaping areas, parks, gardens and recreation areas, where some of the nurseries producing <i>Robinia</i> plants are located. <i>R. pseudoacacia</i> is a host of <i>A. chinensis</i>, despite the fact that it is not listed as a preferred host. It is possible that local populations of <i>A. chinensis</i> are present in the neighbouring environment of nurseries producing <i>Robinia</i> plants destined for export, especially in the Istanbul area. Plants are grown in open fields and adult <i>A. chinensis</i> can enter from the surrounding environment. <i>R. pseudoacacia</i> plants destined for export to the EU are grown initially in forest nurseries located throughout the country and then transferred into the producing/exporting nurseries. Both, forest nurseries producing <i>R. pseudoacacia</i> seedlings and the producing/exporting nurseries can also produce several species of ornamental plants that are host plants of <i>A. chinensis</i>. It is possible that undetected populations of <i>A. chinensis</i> are present in outbreak areas in the neighbourhood of nurseries with <i>R. pseudoacacia</i>.</p> <p><b>Measures taken against the pest and their efficacy</b>  The relevant applied measures are: (i) regular inspections in the nurseries (at least 1 inspection per year) (ii) export inspections; (iii) surveillance at national level.</p> <p><b>Interception records</b>  There are no records of interceptions of <i>A. chinensis</i> from Turkey.</p> <p><b>Shortcomings of current measures/procedures</b>  There is no clear indication of a pesticides scheme or any other risk mitigation measure in place in the forest and in the exporting nurseries, effective against <i>A. chinensis</i> on <i>Robinia</i>.</p> <p><b>Main uncertainties</b>  The pest prevalence in the surrounding environment is unknown. No information is available regarding the presence of other host plant species of <i>A. chinensis</i> in nurseries producing <i>Robinia</i>.</p>				

(a): The "number of pest free plants per 10,000" is calculated as "10,000 – Number of infested plants per 10,000" and reordered from small to large to obtain the percentiles.

### 5.3.2. Overview of the evaluation of *Lopholeucaspis japonica*

Rating of the likelihood of pest freedom	Very frequently pest free (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest free plants	<b>9,521</b> out of 10,000 plants	<b>9,625</b> out of 10,000 plants	<b>9,750</b> out of 10,000 plants	<b>9,875</b> out of 10,000 plants	<b>9,975</b> out of 10,000 plants
Proportion of infested plants <sup>(a)</sup>	<b>25</b> out of 10,000 plants	<b>125</b> out of 10,000 plants	<b>250</b> out of 10,000 plants	<b>375</b> out of 10,000 plants	<b>479</b> out of 10,000 plants
Summary of the information used for the evaluation	<p><b>Possibility that the pest could become associate with the commodity</b>  <i>L. japonica</i> is a polyphagous armoured scale feeding on plants belonging to 38 families. <i>Robinia pseudoacacia</i> has been reported as a host of <i>L. japonica</i> in Iran and South Korea. <i>L. japonica</i> is present in the Black Sea region of Turkey where some of the nurseries producing <i>R. pseudoacacia</i> are located. Due to its polyphagous nature the pest can be present in the surrounding environment of the nurseries producing <i>Robinia</i>. Plants are grown in the open field. The pest can enter the production fields as crawlers either with air currents or transported accidentally by human activities or hitchhiking on animals. Crawlers can walk a small distance of up to a few meters and mainly within a tree or between touching branches of neighbouring trees.</p> <p><b>Measures taken against the pest and their efficacy</b>            The relevant applied measures are: (i) regular inspections in the nurseries (at least 1 inspection per year) (ii) export inspections.</p> <p><b>Interception records</b>            There are no records of interceptions of <i>L. japonica</i> from Turkey.</p> <p><b>Shortcomings of current measures/procedures</b>            There is no clear indication of a pesticides scheme or any other risk mitigation measure in place in the forest and in the exporting nurseries, effective against <i>L. japonica</i> on <i>Robinia</i>.</p> <p><b>Main uncertainties</b>            The presence of the pest in the surrounding environment of the pest is uncertain. The distribution of the pest in other parts of Turkey is not known as there are no official surveys.</p>				

(a): The "number of pest free plants per 10,000" is calculated as "10,000 – Number of infested plants per 10,000" and reordered from small to large to obtain the percentiles.

### 5.3.3. Overview of the evaluation of *Pochazia shantungensis*

Rating of the likelihood of pest freedom	Extremely frequently pest free (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest free plants	<b>9,818</b> out of 10,000 plants	<b>9,873</b> out of 10,000 plants	<b>9,921</b> out of 10,000 plants	<b>9,962</b> out of 10,000 plants	<b>9,983</b> out of 10,000 plants
Proportion of infested plants <sup>(a)</sup>	<b>7</b> out of 10,000 plants	<b>38</b> out of 10,000 plants	<b>79</b> out of 10,000 plants	<b>127</b> out of 10,000 plants	<b>182</b> out of 10,000 plants

<p><b>Summary of the information used for the evaluation</b></p>	<p><b>Possibility that the pest could become associate with the commodity</b>  <i>Pochazia shantungensis</i> is a polyphagous planthopper present in the Marmara Region, where nurseries producing <i>R. pseudoacacia</i> are located. Plants are grown in the open field. Adults can spread and enter the nurseries by flying. <i>R. pseudoacacia</i> is reported to be a host for <i>P. shantungensis</i> and due to its polyphagous nature host plants can be widely available in the surrounding environment.</p> <p><b>Measures taken against the pest and their efficacy</b>  The relevant applied measures are: (i) regular inspections in the nurseries (at least 1 inspection per year) (ii) export inspections.</p> <p><b>Interception records</b>  There are no records of interceptions of <i>P. shantungensis</i> from Turkey.</p> <p><b>Shortcomings of current measures/procedures</b>  There is no clear indication of a pesticides scheme or any other risk mitigation measure in place in the forest and in the exporting nurseries, effective against <i>P. shantungensis</i> on <i>Robinia</i>.</p> <p><b>Main uncertainties</b>  The presence of the pest in the surrounding environment of the pest is uncertain. The distribution of the pest in other parts of Turkey is not known as there are no official surveys.</p>
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(a): The "number of pest free plants per 10,000" is calculated as "10,000 - Number of infested plants per 10,000" and reordered from small to large to obtain the percentiles.

#### 5.3.4. Outcome of Expert Knowledge Elicitation

Table 8 and Figure 3 show the outcome of the EKE regarding pest freedom after the evaluation of the currently proposed risk mitigation measures for the selected pests.

Figure 4 provides an explanation of the descending distribution function describing the likelihood of pest freedom after the evaluation of the currently proposed risk mitigation measures for *R. pseudoacacia* bare rooted and potted plants designated for export to the EU based on the example for *Lopholeucapsis japonica*.



**Table 8:** Assessment of the likelihood of pest freedom following evaluation of current risk mitigation measures against *Anoplophora chinensis*, *Lopholeucapsis japonica* and *Pochazia shantungensis* on *Robinia pseudoacacia* bare rooted and potted plants designated for export to the EU. In panel A, the median value for the assessed level of pest freedom for each pest is indicated by 'M', the 5% percentile is indicated by L and the 95% percentile is indicated by U. The percentiles together span the 90% uncertainty range regarding pest freedom. The pest freedom categories are defined in panel B of the table

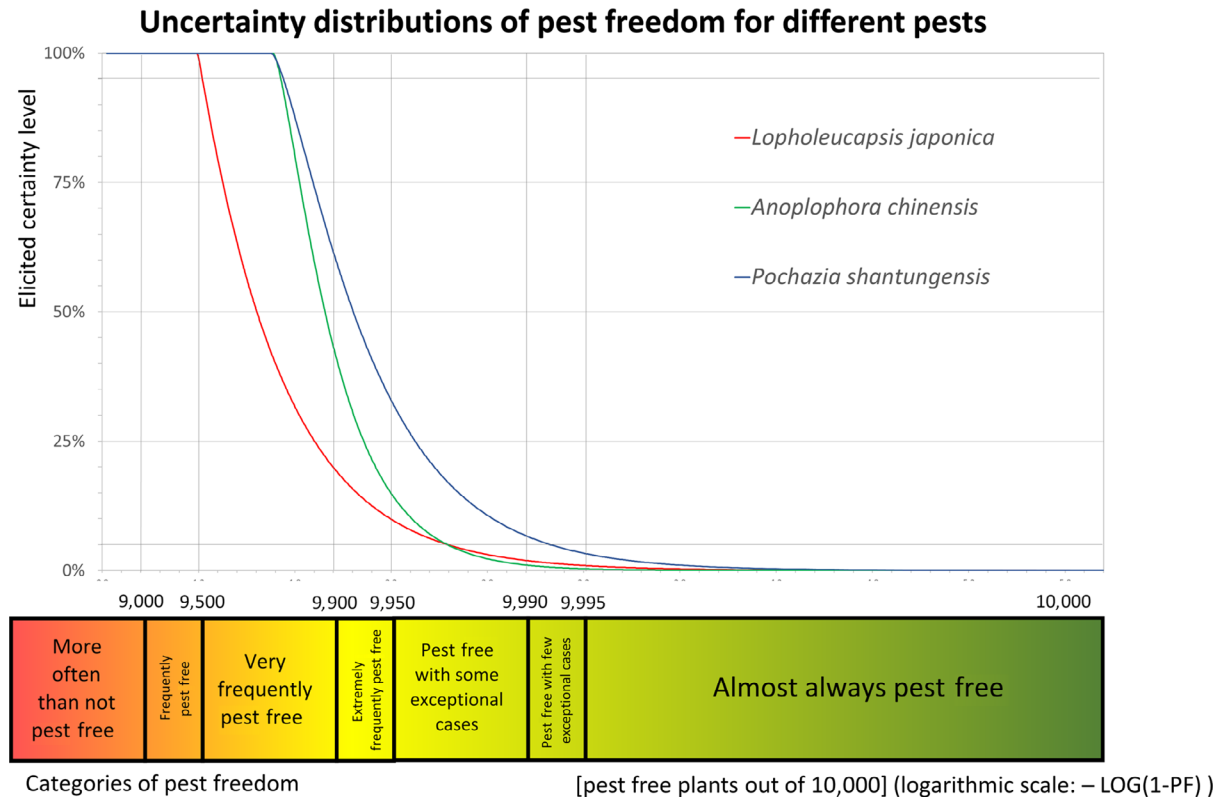
Number	Group*	Pest species	Sometimes pest free	More often than not pest free	Frequently pest free	Very frequently pest free	Extremely frequently pest free	Pest free with some exceptional cases	Pest free with few exceptional cases	Almost always pest free
1		<i>Anoplophora chinensis</i>				LM		U		
2		<i>Lopholeucapsis japonica</i>				LM		U		
3		<i>Pochazia shantungensis</i>				L	M		U	

PANEL A

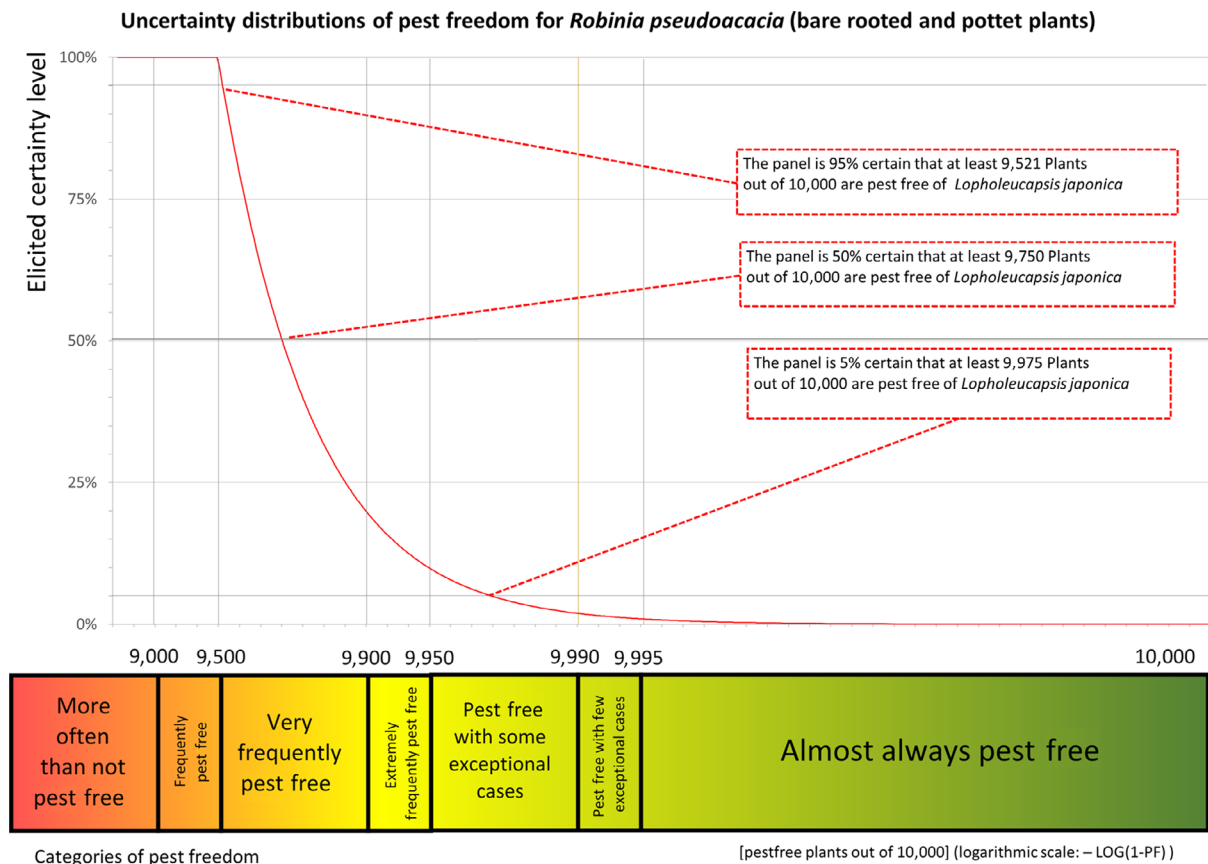
	Pest freedom category	Pest free plants out of 10,000
	Sometimes pest free	≤ 5,000
	More often than not pest free	5,000 – ≤ 9,000
	Frequently pest free	9,000 – ≤ 9,500
	Very frequently pest free	9,500 – ≤ 9,900
	Extremely frequently pest free	9,900 – ≤ 9,950
	Pest free with some exceptional cases	9,950 – ≤ 9,990
	Pest free with few exceptional cases	9,990 – ≤ 9,995
	Almost always pest free	9,995 – ≤ 10,000

PANEL B

Legend of pest freedom categories	
L	Pest freedom category includes the elicited lower bound of the 90% uncertainty range
M	Pest freedom category includes the elicited median
U	Pest freedom category includes the elicited upper bound of the 90% uncertainty range



**Figure 3:** Elicited certainty (y-axis) of the number of pest-free *Robinia pseudoacacia* plants (x-axis; log-scaled) out of 10,000 plants designated for export to the EU introduced from Turkey for all evaluated pests visualised as descending distribution function. Horizontal lines indicate the percentiles (starting from the bottom 5%, 25%, 50%, 75%, 95%). The Panel is 95% sure that 9,813, 9,521 and 9,818 or more plants per 10,000 will be free from *Anoplophora chinensis*, *Lopholeucapsis japonica* and *Pochazia shantungensis*, respectively



**Figure 4:** Explanation of the descending distribution function describing the likelihood of pest freedom after the evaluation of the currently proposed risk mitigation measures for plants designated for export to the EU based on based on the example of *Lopholeucapsis japonica*

## 6. Conclusions

There are three pests identified to be present in Turkey and considered to be potentially associated with bare rooted and potted plants of *Robinia pseudoacacia* imported from Turkey and relevant for the EU.

For these pests (*A. chinensis*, *L. japonica* and *P. shantungensis*), the likelihood of the pest freedom after the evaluation of the currently proposed risk mitigation measures for *R. pseudoacacia* designated for export to the EU was estimated.

For *Anoplophora chinensis* the likelihood of pest freedom following evaluation of current risk mitigation measures was estimated as 'very frequently pest free' with the 90% uncertainty range reaching from 'very frequently pest free' to 'pest free with some exceptional cases'. The Expert Knowledge Elicitation (EKE) indicated, with 95% certainty, that between 9,813 and 10,000 plants per 10,000 will be free from *A. chinensis*.

For *Lopholeucapsis japonica* the likelihood of pest freedom following evaluation of current risk mitigation measures was estimated 'very frequently pest free' with the 90% uncertainty range reaching from 'very frequently pest free' to 'pest free with some exceptional cases'. The EKE indicated, with 95% certainty, that between 9,521 and 10,000 plants per 10,000 will be free from *L. japonica*.

For *Pochazia shantungensis* the likelihood of pest freedom following evaluation of current risk mitigation measures was estimated as 'extremely frequently pest free' with the 90% uncertainty range reaching from 'very frequently pest free' to 'pest free with few exceptional cases'. The EKE indicated, with 95% certainty, that between 9,818 and 10,000 plants per 10,000 will be free from *P. shantungensis*.

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## Glossary

Control (of a pest)	Suppression, containment or eradication of a pest population (FAO, 1995, 2017). Suppression, containment or eradication of a pest population (FAO, 1995, 2017).
Entry (of a pest)	Movement of a pest into an area where it is not yet present, or present but not widely distributed and being officially controlled (FAO, 2017).
Establishment (of a pest)	Perpetuation, for the foreseeable future, of a pest within an area after entry (FAO, 2017).
Greenhouse	A walk-in, static, closed place of crop production with a usually translucent outer shell, which allows controlled exchange of material and energy with the surroundings and prevents release of plant protection products (PPPs) into the environment.
Impact (of a pest)	The impact of the pest on the crop output and quality and on the environment in the occupied spatial units.
Introduction (of a pest)	The entry of a pest resulting in its establishment (FAO, 2017)
Measures	Control (of a pest) is defined in ISPM 5 (FAO 2017) as 'Suppression, containment or eradication of a pest population' (FAO, 1995).

	Control measures are measures that have a direct effect on pest abundance.
	Supporting measures are organisational measures or procedures supporting the choice of appropriate risk mitigation measures that do not directly affect pest abundance.
Pathway	Any means that allows the entry or spread of a pest (FAO, 2017)
Phytosanitary measures	Any legislation, regulation or official procedure having the purpose to prevent the introduction or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests (FAO, 2017)
Protected zone	A Protected zone is an area recognised at EU level to be free from a harmful organism, which is established in one or more other parts of the Union.
Quarantine pest	A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled (FAO, 2017)
Regulated non-quarantine pest	A non-quarantine pest whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated within the territory of the importing contracting party (FAO, 2017).
Risk mitigation measure	A measure acting on pest introduction and/or pest spread and/or the magnitude of the biological impact of the pest should the pest be present. A risk mitigation measure may become a phytosanitary measure, action or procedure according to the decision of the risk manager
Spread (of a pest)	Expansion of the geographical distribution of a pest within an area (FAO, 2017)
Union quarantine pests	European Union quarantine pest

## Abbreviations

CABI	Centre for Agriculture and Bioscience International
EKE	Expert knowledge elicitation
EPPO	European and Mediterranean Plant Protection Organization
FAO	Food and Agriculture Organization
ISPM	International Standards for Phytosanitary Measures
PPIS	Plant Protection & Inspection Services
PLH	Plant Health
PRA	Pest Risk Assessment
RNQPs	Regulated Non-Quarantine Pests

## Appendix A – Data sheets of pests selected for further evaluation via Expert Knowledge Elicitation

### A.1. Anoplophora chinensis

#### A.1.1. Organism information

<b>Taxonomic information</b>	<p>Current valid scientific name: <i>Anoplophora chinensis</i></p> <p>Synonyms: <i>Anoplophora macularia</i>, <i>Anoplophora malasiaca</i>, <i>Callophora macularia</i>, <i>Cerambyx chinensis</i>, <i>Cerambyx farinosus</i>, <i>Cerambyx punctator</i>, <i>Melanauster chinensis</i>, <i>Melanauster chinensis</i> var. <i>macularius</i>, <i>Melanauster macularius</i></p> <p>Name used in the EU legislation: <i>Anoplophora chinensis</i> (Thomson) [ANOLCN]</p> <p>Order: Coleoptera Family: Cerambycidae Common name: black and white longhorn, citrus long-horned beetle, citrus longhorn, citrus root cerambycid, white-spotted longicorn beetle Name used in the Dossier: <i>Anoplophora chinensis</i></p>	
<b>Group</b>	Insects	
<b>EPPO code</b>	ANOLCN	
<b>Regulated status</b>	The pest is listed in Annex II/B of Commission Implementing Regulation (EU) 2019/2072 as <i>Anoplophora chinensis</i> (Thomson) [ANOLCN]. There are emergency measures in place in EU (Commission Implementing Decision 2012/138/EU) and this pest is listed as a Priority Pest.	
<b>Pest status in Turkey</b>	Transient, under eradication (EPPO GD, online).	
<b>Pest status in the EU</b>	Not relevant, listed as EU Quarantine pest (Annex II, part B).	
<b>Host status on Robinia pseudoacacia</b>	<i>R. pseudoacacia</i> is not listed as a preferred host plant for <i>A. chinensis</i> (EPPO 2013). Sjöman et al. (2014) categorised <i>Robinia</i> spp. as a host for which there is evidence that unspecified <i>Robinia</i> species can support the complete life cycle of the beetles. Sjöman et al. (2014) categorised <i>R. pseudoacacia</i> as a host plant reported to be used as a feeding plant for adults, but without confirmation that it can support the complete life cycle of the beetles.	
<b>PRA information</b>	van der Gaag DJ, Ciampitti M, Cavagna B, Maspero M and Hérard F, 2008. Pest Risk Analysis for <i>Anoplophora chinensis</i> . Plant Protection Service, The Netherlands.	
<b>Other relevant information for the assessment</b>		
<b>Biology</b>	<i>A. chinensis</i> is a woodboring beetle that attacks living trees. The beetle has a 1–2-years life cycle in southern Europe. Depending on the temperature, adults emerge between April–May and August (sometimes later). Adults live between 30 and 70 days. Adults conduct maturation feeding for 10–15 days on twigs and the veins of leaves, before mate-finding and copulation occurs.	
<b>Symptoms</b>	<b>Main type of symptoms</b>	External signs of the presence of <i>A. chinensis</i> on or inside a tree include oviposition pits, deposited larval frass, signs of maturation feeding and exit holes. For more information on symptoms see EFSA (2019).
	<b>Presence of asymptomatic plants</b>	Plants can be infested with eggs and feeding larvae, without (evident) external signs or symptoms.
	<b>Confusion with other pathogens/pests</b>	<i>Anoplophora glabripennis</i>
<b>Host plant range</b>	<i>A. chinensis</i> is a polyphagous pest, see EPPO (2013) for a full host plant list. The preferred host plants of <i>A. chinensis</i> are (EPPO,2014): <i>Acer spp.</i> , <i>Aesculus hippocastanum</i> , <i>Alnus spp.</i> , <i>Betula spp.</i> , <i>Carpinus spp.</i> , <i>Citrus spp.</i> , <i>Cornus spp.</i> , <i>Corylus spp.</i> , <i>Cotoneaster spp.</i> , <i>Crataegus spp.</i> , <i>Fagus spp.</i> , <i>Lagerstroemia spp.</i> , <i>Malus spp.</i> , <i>Platanus spp.</i> , <i>Populus spp.</i> , <i>Prunus laurocerasus</i> , <i>Pyrus spp.</i> , <i>Rosa spp.</i> , <i>Salix spp.</i> and <i>Ulmus spp.</i>	



<b>Reported evidence of impact</b>	Not relevant, listed as EU Quarantine pest (Annex II, part B).
<b>Pathways and evidence that the commodity is a pathway</b>	The assessed commodities consisting of potted or bare rooted plants of 3–7 years old can be a pathway for <i>A. chinensis</i> . The stem width of the exported plants is larger than 1 cm which is sufficient for larval development.
<b>Surveillance information</b>	A surveillance programme is in place in relation to outbreak management of <i>A. chinensis</i> in Turkey, following the guidelines in the EU Emergency Measures for <i>A. chinensis</i> .

## A.1.2. Possibility of pest presence in the nurseries

### A.1.2.1. Possibility of entry from the surrounding environment

The pest status of *A. chinensis* in Turkey is 'transient, under eradication' (EPPO, 2020). In Turkey, *A. chinensis* was first found on *Acer palmatum*, *A. saccharum* and *Salix caprea* in a nursery located in the Sile district near Istanbul in June 2014 (EPPO RS 2015/067). Since then, surveys have been carried out in Istanbul and across the country. According to the dossier (Section 3.0) phytosanitary measures, in line with the Decision 2008/840/EC, have been taken to eradicate the pest. All infested trees have been destroyed, an intensive survey and awareness raising programmes have been implemented. In the Istanbul area *A. chinensis* was detected on *Acer* sp. *Salix caprea*, *Fagus orientalis*, *Aesculus hippocastanum*, *Platanus orientalis*, *Populus nigra* and *Salix babylonica*. According to information provided in the dossier *A. chinensis* has also been found in the Bartın province in 2015 (on *Acer palmatum*, *A. saccharum*, *Salix caprea* and *Lagerstromia indica*) and in 2016 in Antalya province (on *Acer* spp. and *Platanus* spp.). According to information provided in the dossier, the outbreak in Bartın province has been eradicated, but *A. chinensis* is still under eradication in Istanbul and Antalya. In addition, there are three recent records of *A. chinensis* in the Istanbul area (one in 2019 and two in 2020) that have been reported on GBIF (GBIF, online).

In Decision 2012/138/EU requirements are specified for the import of specified preferred host plants of *A. chinensis*. Following EPPO (2014), these preferred hosts plant are: *Acer* spp., *Aesculus hippocastanum*, *Alnus* spp., *Betula* spp., *Carpinus* spp., *Citrus* spp., *Cornus* spp., *Corylus* spp., *Cotoneaster* spp., *Crataegus* spp., *Fagus* spp., *Lagerstroemia* spp., *Malus* spp., *Platanus* spp., *Populus* spp., *Prunus laurocerasus*, *Pyrus* spp., *Rosa* spp., *Salix* spp. and *Ulmus* spp. For the specified plant species the export country has to specify that the plants are produced in pest free areas for *A. chinensis* or that the plants have been produced in insect proof greenhouses.

Thus *R. pseudoacacia* is not mentioned in this list of specified plants and therefore, there are no specific requirements for the import of *R. pseudoacacia* plants from countries where *A. chinensis* is known to occur. So far, there are no reports of *A. chinensis* on *R. pseudoacacia* in Turkey. However, there is a possibility that nurseries producing *R. pseudoacacia* are present in the demarcated areas of the current outbreak areas of *A. chinensis*. The pest detected in public lanes, public landscaping areas, parks, gardens and recreation areas.

Both, forest nurseries producing seedlings of *R. pseudoacacia* and the production/exporting nurseries can also produce several species of ornamental plants that are host plants of *A. chinensis*.

*A. chinensis* has been reported in three nurseries in Turkey (on *Acer palmatum*, *A. saccharum* and *Salix caprea*) in the Istanbul area.

#### **Uncertainties:**

The intensity of the official national survey for *A. chinensis*.

The host plant species of *A. chinensis* present in nurseries.

The host plant status of *R. pseudoacacia* for *A. chinensis*.

Taking into consideration the above evidence and uncertainties, the Panel considers that is possible that *A. chinensis* can enter the nursery from the surrounding area.

### A.1.2.2. Possibility of entry with new plants/seeds

The *R. pseudoacacia* plants delivered by forest nurseries to export nurseries (for production to the desired age for export) can be a pathway for *A. chinensis*.

The plants delivered by forest nurseries have the age of at least one year and have an estimated stem width of more than 1 cm, which is large enough to be attractive as oviposition site and suitable for larval development of *A. chinensis*.

#### **Uncertainties:**

The intensity of the official national survey for *A. chinensis*.

The host plant status of *R. pseudoacacia* for *A. chinensis*.

The pest presence of *A. chinensis* in forest nurseries and its surrounding environment.

Taking into consideration the above evidence and uncertainties, the Panel considers it is possible that the pest could enter the nursery with new plants.

#### **A.1.2.3. Possibility of spread within the nursery**

If *A. chinensis* is present on preferred host plants in a nursery, there is a possibility that it can move to *R. pseudoacacia* plants. *A. chinensis* is reported to have a dispersal rate of 200 m/year (40–900 m/year 90% uncertainty range) (EFSA, 2019).

Once *A. chinensis* is present in a nursery it can develop unnoticed. Data from the Netherlands indicated that 25% of the plants present in a nursery of *Acer palmatum* (i.e. a preferred host species) were infested with *A. chinensis*.

#### **Uncertainties:**

The host plant status of *R. pseudoacacia* for *A. chinensis*.

The host plant species of *A. chinensis* present in nurseries.

Taking into consideration the above evidence and uncertainties, the Panel considers that the spread of the pest within the nursery is possible.

#### **A.1.3. Information from interceptions**

In the EUROPHYT/TRACES NT database there are no interceptions of *A. chinensis* on plants for planting from Turkey.

There are no records of interception of *A. chinensis* on *Robinia* spp. (all origins).

#### **A.1.4. Evaluation of the risk reduction options**

In the table below, all the risk mitigation measures currently applied in Turkey are summarised and an indication of their effectiveness on *Anoplophora chinensis* is provided.

Number	Risk mitigation measures	Current measures in Turkey	Evaluation and uncertainties
1	Registration of the nursery and Phytosanitary management	Forest nurseries (producing young plants) are officially registered and inspected at least once a year.  All nurseries producing ornamental plants are required to be a member of the ornamental plant grower union in Turkey and inspected at least once a year. A plant passport or export certificate is issued.	Nurseries are registered and inspected at least once a year with an unknown monitoring intensity.
2	Physical protection	Some production of the early stages of plants, but not of the older ones to be exported, may take place in production places with netting.	Adult beetles may enter open field nurseries.  Adult beetles may be not able to enter production places with nettings  <u>Uncertainties</u> No specific information is provided The proportion/stages of plants

Number	Risk mitigation measures	Current measures in Turkey	Evaluation and uncertainties
			produced in production places with nettings is not known.
3	Pest monitoring and inspections by the nursery staff during the production process	<p>Nurseries are officially inspected at least once a year and for issuing the export certificate.</p> <p>There are guidelines available for detection of pests in agricultural crops (technical instructions for plant pests in agricultural crops – link in Dossier, Section 1).</p> <p><i>A. chinensis</i> has a quarantine status in Turkey and there are specific inspection instructions for <i>A. chinensis</i>.</p>	<p>Early infestation stages maybe missed by nursery staff</p> <p><u>Uncertainties</u></p> <p>No specific information is provided on how the nurseries are applying the inspection instructions. The intensity of <i>R. pseudoacacia</i> inspection in the nursery is probably low (i.e. is not listed as preferred host).</p>
4	Pesticide treatment	<p>There is a database for registered insecticides in Turkey. There are no products registered for <i>Robinia</i>. There are guidelines available for the management of pests in agricultural crops (technical instructions for plant pests in agricultural crops – link in Dossier, Section 1).</p> <p>There were pesticide applications targeted at <i>A. chinensis</i> in Istanbul areas on (apple, pear, cherry, hazelnut, poplar, plane, birch, horse chestnut, elm, alder, maple, hornbeam, mountain medlar and beech).</p>	<p><u>Uncertainties</u></p> <p>No detailed information is provided, it is unknown which insecticide are used in <i>R. pseudoacacia</i> production.</p>
5	Surveillance	<p>There are targeted national surveys for <i>A. chinensis</i> in Turkey related to the outbreak management.</p> <p>In case <i>A. chinensis</i> is found, eradication measures are to be applied following EU Decision 2012/138/EU</p>	<p><u>Uncertainties</u></p> <p>The intensity of the national survey is uncertain/unknown</p> <p>Not known if the surveillance is carried out also on <i>R. pseudoacacia</i> (i.e. not preferred host)</p>
6	Washing of roots	<p>Soil is removed by washing the roots (only on bare rooted plants). No detailed information is provided</p>	<p>Root washing has no effect on <i>A. chinensis</i>.</p>
7	Export inspection	<p>Prior to export the consignment is visually inspected</p>	<p>If individual plants are inspected <i>A. chinensis</i> may be detected.</p> <p><u>Uncertainty:</u></p> <p>Sampling intensity in the export inspections is not known</p>

### A.1.5. Overall likelihood of the pest freedom

#### A.1.5.1. Reasoning for a scenario which would lead to a reasonably low number of infested consignments

- There are no additional host plants of *A. chinensis* in the nurseries producing *R. pseudoacacia* and in the surrounding environment.
- *R. pseudoacacia* is not a preferred host plant for *A. chinensis*.

- *A. chinensis* is under official control; there are targeted surveys and all outbreaks are detected and managed.

#### A.1.5.2. Reasoning for a scenario which would lead to a reasonably high number of infested consignments

- There are preferred host plants of *A. chinensis* in the nurseries producing *R. pseudoacacia* and in the surrounding environment.
- *A. chinensis* was introduced in 2014 in the Istanbul area in a tree nursery. Since then, it has been reported in other parts of Istanbul as well as in Antalya and Bartin. In 2020 the pest is still under eradication in Istanbul and in Antalya. There are three recent records of findings of adults of *A. chinensis* in the Istanbul area (GBIF, online).
- The young plants used for the production of *R. pseudoacacia* can originate from nurseries throughout Turkey.
- It may take several years before a new outbreak is detected.
- There is uncertainty on the intensity of the official national surveys of *A. chinensis*.
- *A. chinensis* has been reported from tree nurseries in the same province where nurseries with *R. pseudoacacia* are located.

#### A.1.5.3. Reasoning for a central scenario equally likely to over- or underestimate the number of infested consignments (Median)

The value of the median is estimated based on:

- Based on the uncertainty on the efficacy of the eradication efforts, the Panel judge higher values for being more likely. Therefore, the median was placed closer to the highest scenario.

#### A.1.5.4. Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/interquartile range)

The main uncertainty is the population pressure in the surrounding environment.

### A.1.5.5. Elicitation outcomes of the assessment of the pest freedom for *Anoplophora chinensis*

The following Tables show the elicited and fitted values for pest infestation/infection (Table A.1) and pest freedom (Table A.2).

**Table A.1:** Elicited and fitted values of the uncertainty distribution of pest infestation by *Anoplophora chinensis* per 10,000 plants

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	1					70		110		150					200
EKE	9.71	16.8	25.6	39.1	53.8	69.6	83.9	111	136	150	164	176	187	194	199

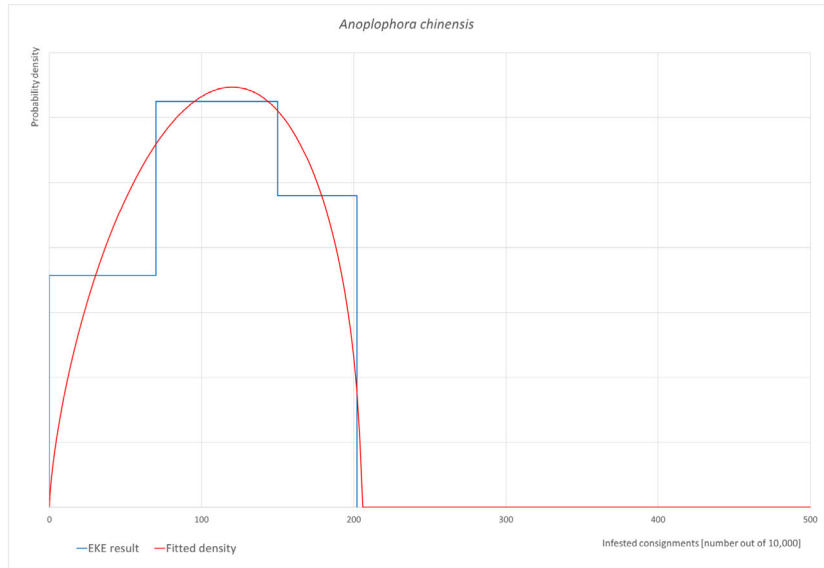
The EKE result is the Beta General distribution (1.6872, 1.4855) fitted with @Risk version 7.5.

Based on the numbers of estimated infested plants the pest freedom was calculated (i.e. = 10,000 – the number of infested plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.2.

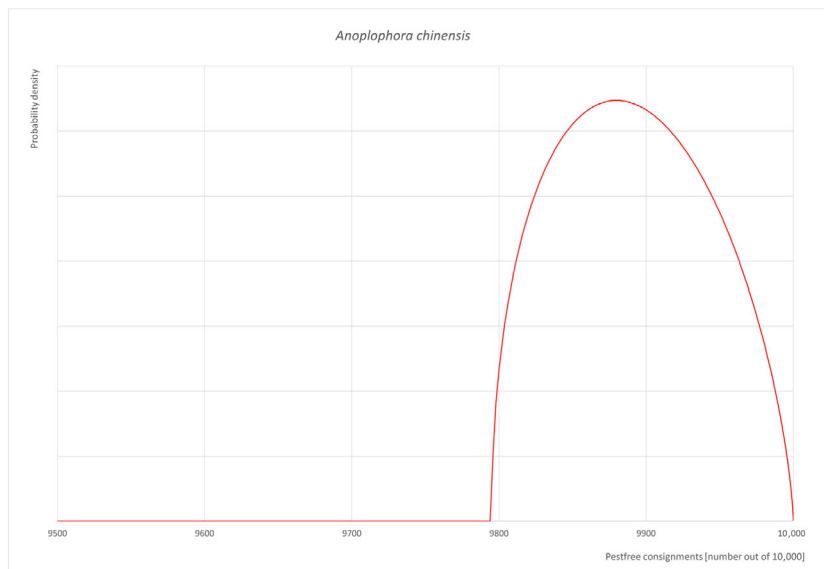
**Table A.2:** The uncertainty distribution of plants free of *Anoplophora chinensis* per 10,000 plants calculated by Table A.1

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9,800					9,850		9,890		9,930					9,999
EKE results	9,801	9,806	9,813	9,824	9,836	9,850	9,864	9,889	9,916	9,930	9,946	9,961	9,974	9,983	9,990

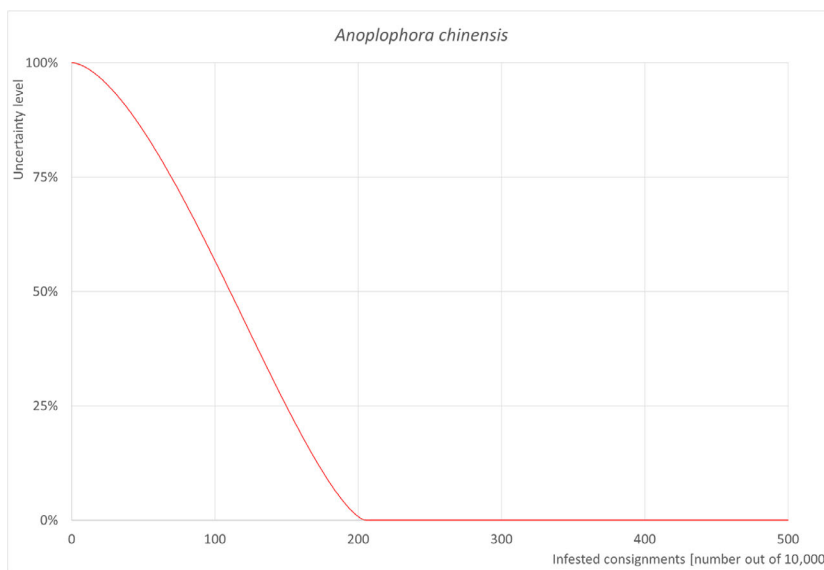
The EKE results are the fitted values.



(a)



(b)



(c)



**Figure A.1:** (a) Elicited uncertainty of pest infestation per 10,000 plants (histogram in blue– vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (b) uncertainty of the proportion of pest free plants per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (c) descending uncertainty distribution function of pest infestation per 10,000 plants

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## A.2. *Lopholeucaspis japonica*

### A.2.1. Organism information

<b>Taxonomic information</b>	<p>Current valid scientific name: <i>Lopholeucaspis japonica</i></p> <p>Synonyms: <i>Leucaspis hydrangea</i>, <i>Leucaspis japonica darwinensis</i></p> <p>Name used in the EU legislation: <i>Lopholeucaspis japonica</i> Cockerell [LOPLJA]</p> <p>Order: Hemiptera</p> <p>Family: Diaspididae</p> <p>Common name: Japanese long scale, Japanese maple scale, Japanese pear white scale</p> <p>Name used in the Dossier: <i>Lopholeucaspis japonica</i></p>
<b>Group</b>	Insects
<b>EPPO code</b>	LOPLJA
<b>Regulated status</b>	The pest is listed in Annex II of Commission Implementing Regulation (EU) 2019/2072 as <i>Lopholeucaspis japonica</i> Cockerell [LOPLJA]
<b>Pest status in Turkey</b>	<i>Lopholeucaspis japonica</i> is present in Turkey (EPPO, online) and it is located in the Black Sea Region (integration of information of the technical dossiers received on 27 November 2020). The pest has a quarantine status in Turkey (A2 list).
<b>Pest status in the EU</b>	Not relevant, listed as EU Quarantine pest (Annex II, part A).
<b>Host status on <i>Robinia pseudoacacia</i></b>	<i>Robinia pseudoacacia</i> has been reported as a host of <i>Lopholeucaspis japonica</i> in Iran (Moghaddam, 2013) and South Korea (Suh, 2020).
<b>PRA information</b>	<p>Pest Risk Assessments available:</p> <ul style="list-style-type: none"> <li>Final import risk analysis report for fresh apple fruit from the People's Republic of China (Biosecurity Australia, 2010),</li> </ul> <p>Scientific Opinion on the pest categorisation of <i>Lopholeucaspis japonica</i> (EFSA PLH Panel, 2018).</p>

**Other relevant information for the assessment**

<b>Biology</b>	<p><i>L. japonica</i> is oyster shell-shaped armoured scale, originating from Far East and it spread to tropical and semitropical areas (CABI, online).</p> <p>Females and males have different life cycle. The life stages of female are egg, two larval instars and adult, while male has additional two stages called pre-pupa and pupa (CABI, online). Males are small and have wings (Bienkowski, 1993), while females are sessile covered by scale formed by wax filaments originating from the pygidium (Tabatadze and Yasnosh, 1999). The colour of females, eggs and crawlers is lavender. The wax which is covering the body of scales is white (Fulcher et al., 2011). Each female lay on average 25 eggs, which are laid underneath the female bodies (Addesso et al., 2016; Fulcher et al., 2011).</p> <p>Crawlers can be dispersed by wind or other insects (e.g. ants, flies and ladybirds), occasionally also by human transport (Magsig-Castillo et al., 2010).</p> <p><i>L. japonica</i> has one or two overlapping generations per year (Addesso et al., 2016). It was reported that occasionally there can be a third generation in Georgia (Tabatadze and Yasnosh, 1999). In India, first generation crawlers were observed from late March until the end of April. Females and male pupae were present from June till the end of August. Second generation crawlers occurred in September and matured females in October (Harsur et al., 2018).</p> <p><i>L. japonica</i> overwinters as an immature stage on trunks and branches in Tennessee (Fulcher et al., 2011) and second instar males and females in Maryland (Gill et al., 2012). In addition, it has been reported to overwinter as fertilised females in Japan (Murakami, 1970) and in Pennsylvania (Stimmel, 1995). They can endure temperatures of -20 to -25°C (EPPO, 1997).</p>	
<b>Symptoms</b>	<p><b>Main type of symptoms</b></p>	<p><i>L. japonica</i> is usually on bark of branches and trunk but can be found also on leaves (Gill et al., 2012) and sometimes on fruits (EPPO, 1997).</p> <p>The scale feeds on plant storage cells, which causes them to collapse (Fulcher et al., 2011). When the population is high, the main symptoms on plants are premature leaf drop, dieback of branches and death of plants (Fulcher et al., 2011; Gill et al., 2012).</p>
	<p><b>Presence of asymptomatic plants</b></p>	<p>Early infestations are difficult to be detected.</p>
	<p><b>Confusion with other pests</b></p>	<p><i>L. japonica</i> can be confused with other armoured scales.</p> <p><i>L. japonica</i> is similar to <i>L. cockerelli</i> but can be differentiated by the number of macroducts (García Morales et al., online).</p>
<b>Host plant range</b>	<p><i>L. japonica</i> is polyphagous armoured scale and feeds on plants belonging to 38 families (García Morales et al., online).</p> <p>Some of the many hosts of <i>L. japonica</i> are <i>Acer palmatum</i>, <i>Acer pictum</i>, <i>Acer ukurunduense</i>, <i>Citrus junos</i>, <i>Citrus unshiu</i>, <i>Diospyros kaki</i>, <i>Distylium racemosum</i>, <i>Elaeagnus umbellata</i>, <i>Euonymus alatus</i>, <i>Euonymus japonicus</i>, <i>Gleditsia japonica</i>, <i>Ilex crenata</i>, <i>Magnolia denudata</i>, <i>Magnolia kobus</i>, <i>Malus pumila</i>, <i>Paeonia lactiflora</i>, <i>Poncirus trifoliata</i>, <i>Prunus × yedoensis</i>, <i>Pyrus pyrifolia</i>, <i>Robinia pseudoacacia</i>, <i>Rosa chinensis</i>, <i>Rosa multiflora</i>, <i>Salix</i> sp., <i>Staphylea bumalda</i>, <i>Syringa oblata</i> and <i>Ziziphus jujuba</i> (Suh, 2020).</p>	
<b>Reported evidence of impact</b>	<p>Not relevant, listed as EU Quarantine pest (Annex II, part B).</p>	
<b>Evidence that the commodity is a pathway and other pathways</b>	<p><i>L. japonica</i> can be present on stems, branches of bare rooted plants and on leaves, branches and stems of potted plants.</p> <p>Other pathways of entry for <i>L. japonica</i> are plants for planting of other species than <i>R. pseudoacacia</i>, cut flowers and cut branches (EFSA PLH Panel, 2018).</p>	
<b>Surveillance information</b>	<p>No surveillance information for this pest is currently available from Turkey.</p>	

## A.2.2. Possibility of pest presence in the nursery

### A.2.2.1. Possibility of entry from the surrounding environment

*L. japonica* is present in the Black Sea Region in Turkey (Dossier, integration of information), where some of the nurseries producing *R. pseudoacacia* are located. It can spread with crawlers either with air currents or transported accidentally by human activities or hitchhiking on animals.

Crawlers can walk a small distance of up to a few meters and mainly within a tree or between touching branches of neighbouring trees (Biosecurity Australia, 2010).

Plants are grown in the open field. The pest is present in Turkey and due to its polyphagous nature host plants are widely available in the surrounding environment.

#### Uncertainties:

- The distribution of the pest in other part of Turkey is not known as there are no official surveys.
- The presence of the pest in the surrounding environment of the pest is uncertain.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pest to enter the nursery from the surrounding area.

### A.2.2.2. Possibility of entry with new plants/seeds

*R. pseudoacacia* plants in Turkey are grown mainly from seeds. However, some specific varieties (mainly ball acacia (Umbralificer) and pink flowers (Casquer roque)) are grafted with scions. The origin of the scions was not specified.

The *R. pseudoacacia* plants delivered by forest nurseries, located in areas where *L. japonica* is present, to export nurseries (for production to the desired age for export) can be a pathway for *L. japonica*.

#### Uncertainties:

- The origin of scions in relation to the infested areas. The age of the plants where scions are taken from is not known.
- The entry of other host plants in the export nursery

Taking into consideration the above evidence and uncertainties, the Panel considers it possible that the pest could enter the nursery with new plants.

### A.2.2.3. Possibility of spread within the nursery

The pest can spread as crawlers either with air currents or transported accidentally as hitchhikers. The plants are grown in an open nursery and dispersal of crawlers by wind or human activities is possible. Other suitable host plants could be present in the nurseries producing *R. pseudoacacia*.

#### Uncertainties:

The likelihood of spread into the nursery by wind and human activity.

The presence and distribution of other host plants in the nursery.

Taking into consideration the above evidences and uncertainties, the Panel considers that the spread of the pest within the nursery is possible.

## A.2.4. Information from interceptions

In the EUROPHYT/TRACES NT database there are no interceptions of *L. japonica* from Turkey. There was one interception of *L. japonica* on *Acer* sp. bonsai plants from China, indicating that trade of plants for planting can be a pathway for the pest (EUROPHYT online).

## A.2.5. Evaluation of the risk mitigation options

In the table below, all the risk mitigation measures currently applied in Turkey are summarised and an indication of their effectiveness on *L. japonica* is provided.

Number	Risk mitigation measures	Current measures in Turkey	Evaluation of the measures on <i>L. japonica</i>
1	Registration of the nursery and Phytosanitary management	Forest nurseries (producing young plants) are officially registered and inspected at least once a year.  All nurseries producing ornamental plants are required to be a member of the ornamental plant grower union in Turkey and inspected at least once a year. A plant passport or export certificate is issued.	Nurseries are registered and inspected at least once a year
2	Physical protection	Some production of the early stages of plants, but not of the older ones to be exported, may take place in production places with netting.	Crawlers may enter open field nurseries.  Crawlers may be not able to enter production places with nettings  <u>Uncertainties</u> No specific information is provided The proportion/stages of plants produced in production places with nettings is not known.
3	Pest monitoring and inspections by the nursery staff during the production process	Nurseries are officially inspected at least once a year and for issuing the export certificate.  There are no targeted inspections for the actionable pest.  There are guidelines available for detection of pests in agricultural crops (technical instructions for plant pests in agricultural crops – link in Dossier, Section 1).	<u>Uncertainties</u> No detailed information is provided
4	Pesticide treatment	There is a database for registered insecticides in Turkey. There are no products registered for <i>Robinia</i> .  There are guidelines available for the management of pests in agricultural crops (technical instructions for plant pests in agricultural crops – link in Dossier, Section 1).	<u>Uncertainties</u> No detailed information is provided, it is unknown which insecticides are used in <i>R. pseudoacacia</i> production.
5	Surveillance	There are no targeted surveys for the actionable pests.	<u>Uncertainties</u> No detailed information is provided
6	Washing of roots	Soil is removed by washing the roots of bare rooted plants.	Root washing has no effect on <i>L. japonica</i> .
7	Export inspection	Prior to export the consignment is visually inspected	If individual plants are inspected <i>L. japonica</i> may be detected. In cases only <i>L. japonica</i> crawlers are present they may escape detection.  <u>Uncertainty:</u> Sampling intensity in the export inspections

## A.2.5. Overall likelihood of pest freedom

### A.2.5.1. Reasoning for a scenario which would lead to a reasonably low number of infested consignments

- The pest has a restricted distribution in Turkey and has never been reported in the nurseries or their surrounding environment.

- Insecticide treatment against other scale insects is very effective.
- The distance between the nurseries and the alternative hosts of the pest in the surrounding environment is very large. Therefore, transfer from sources in the surrounding environment to the nursery plants is very difficult for a crawling insect.
- Suitable hosts are not present in the production area.

#### **A.2.5.2. Reasoning for a scenario which would lead to a reasonably high number of infested consignments**

- There are nurseries producing *R. pseudoacacia* located in the area where *L. japonica* is prevalent.
- There are no targeted insecticide treatments against *L. japonica*.
- There are suitable hosts in the production area, in close proximity with Robinia plants.
- The growers could be unaware of the presence of *L. japonica* in the area.
- The pest could go undetected during inspections of the nursery.
- Nursery workers could introduce hitchhiking insects to nursery.
- Crawlers are transported by wind currents from the surrounding environment to the nursery.

#### **A.2.5.3. Reasoning for a central scenario equally likely to over- or underestimate the number of infested consignments (Median)**

Regarding the lack of information on the pest, the Panel judge lower values for being more likely. Therefore, the median was placed closer to the lowest scenario.

#### **A.2.5.4. Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/interquartile range)**

The main uncertainty is the population pressure of *L. japonica* in the surrounding environment.

### A.2.5.5. Elicitation outcomes of the assessment of the pest freedom for *Lopholeucapsis japonica*

The following Tables show the elicited and fitted values for pest infestation/infection (Table A.3) and pest freedom (Table A.4).

**Table A.3:** Elicited and fitted values of the uncertainty distribution of pest infestation by *Lopholeucapsis japonica* per 10,000 plants

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	5					125		250		375					500
EKE	5.20	12.8	25.5	50.5	84	125	166	250	333	375	418	452	479	492	500

The EKE result is the Beta General distribution (1.0129,1.0328) fitted with @Risk version 7.5.

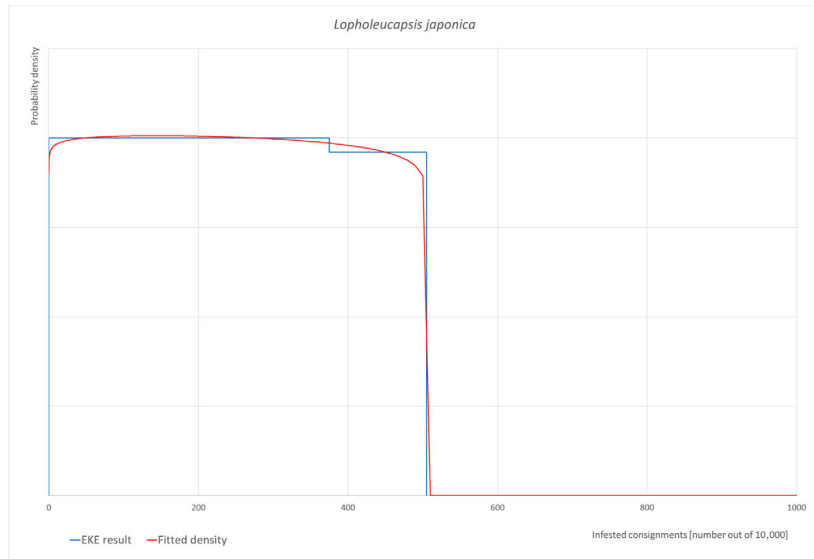
Based on the numbers of estimated infested plants the pest freedom was calculated (i.e. = 10,000 – the number of infested plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.4.

**Table A.4:** The uncertainty distribution of plants free of *Lopholeucapsis japonica* per 10,000 plants calculated by Table A.3

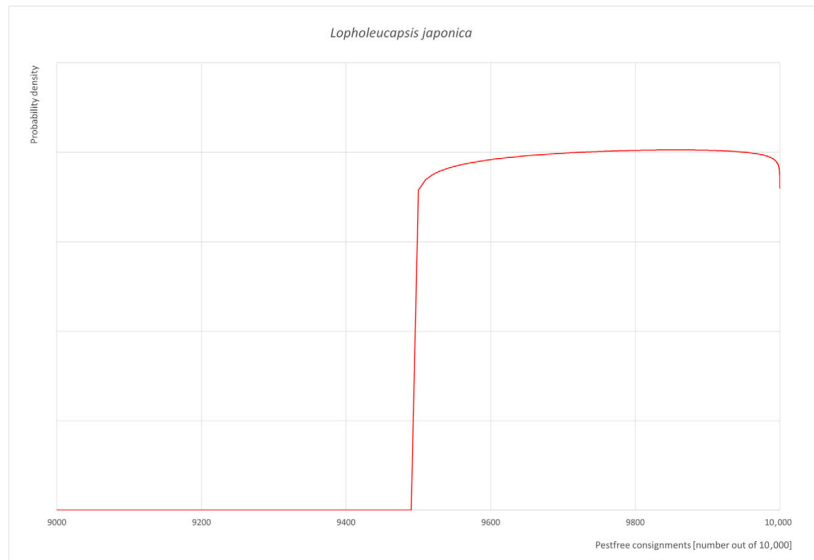
Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9,500					9,625		9,750		9,875					9,995
EKE results	9,500	9,508	9,521	9,548	9,582	9,625	9,667	9,750	9,834	9,875	9,916	9,949	9,975	9,987	9,995

The EKE results are the fitted values.

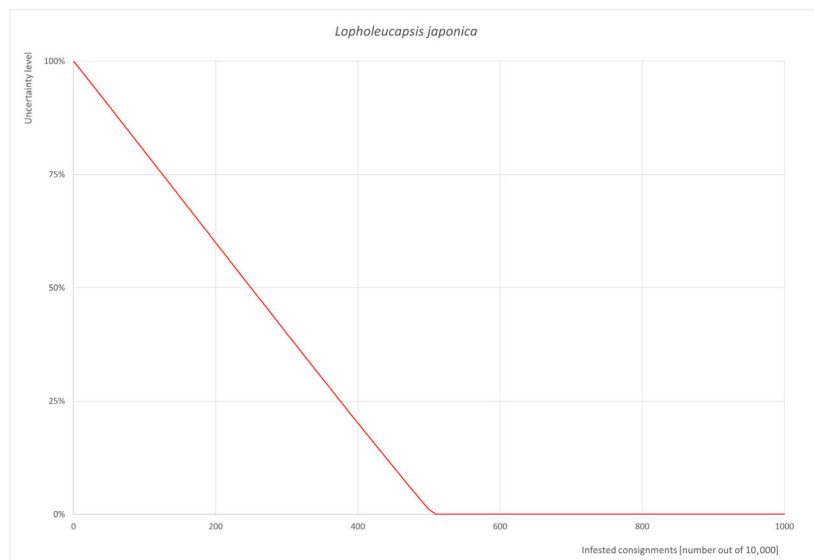




(a)



(b)



(c)

**Figure A.2:** (a) Elicited uncertainty of pest infestation per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (b) uncertainty of the proportion of pest free plants per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (c) descending uncertainty distribution function of pest infestation per 10,000 plants

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### A.3. *Pochazia shantungensis*

#### A.3.1. Organism information

<b>Taxonomic information</b>	Current valid scientific name: <i>Pochazia shantungensis</i> Synonyms: <i>Ricania shantungensis</i> Order: Hemiptera Family: Ricaniidae Common name:	
<b>Group</b>	Insects	
<b>EPPO code</b>	POCZSH	
<b>Regulated status</b>	The pest is not regulated in the EU. <i>Pochazia shantungensis</i> is not included in any EPPO list and it is not regulated anywhere in the world.	
<b>Pest status in Turkey</b>	<i>Pochazia shantungensis</i> is present in Turkey according to the paper of Hizal et al. (2019) as <i>Ricania shantungensis</i> . According to the information provided in the dossier (integration of information) the pest is present in the Marmara region.	
<b>Pest status in the EU</b>	<i>Pochazia shantungensis</i> has been reported in France in 2018 (Bourgoin, 2020).	
<b>Host status on <i>Robinia pseudoacacia</i></b>	<i>Robinia pseudoacacia</i> is reported as a host of <i>Pochazia shantungensis</i> (CABI Crop Protection Compendium, online).	
<b>PRA information</b>	No Pest Risk Assessments available.	
<b>Other relevant information for the assessment</b>		
<b>Biology</b>	<i>Pochazia shantungensis</i> lay eggs in zigzag rows and covers them with white wax filaments. The eggs hatch around mid-May to early June with the spawning season occurring in mid-August. This pest directly causes damage by sucking plant saps and laying eggs. It also indirectly induces sooty mold disease on leaves through its excretions. Lower developmental threshold, thermal constant, optimal developmental temperature and upper developmental threshold were estimated to be 12.1°C, 202 DD, 31°C and 36.9°C, respectively (Baek, 2019). The pest is overwintering in the egg stage. Adults started to lay eggs 3–4 weeks after they were transformed. From early September to October, they gave damage. As the temperature fell, the number of adults decreased. Two generation per year are reported for China and one generation/year in South Korea.	
<b>Symptoms</b>	<b>Main type of symptoms</b>	The insect causes damage by its sap feeding activity. As phloem and xylem are destroyed by the habits of the female adults that lay eggs on the branch of 1-year-old host, it withers. In addition, sooty mould develops on honeydew excreted by <i>P. shantungensis</i> and the tree vigour declines (Choi et al., 2011).
	<b>Presence of asymptomatic plants</b>	
	<b>Confusion with other pathogens/pests</b>	
<b>Host plant range</b>	The species is highly polyphagous. Kim et al. (2015) reports about 138 species of host plants from 62 families. <i>R. pseudoacacia</i> is a known host plant for <i>Pochazia shantungensis</i> . In Turkey <i>P. shantungensis</i> was reported on <i>Ligustrum lucidum</i> and <i>Liquidambar styraciflua</i> (Hizal et al., 2019)	
<b>Reported evidence of impact</b>	<i>P. shantungensis</i> is reported as an invasive pest in South Korea on several crops as apple, blueberries, chestnut (Jo et al., 2016).	
<b>Evidence that the commodity is a pathway and other pathways</b>	Eggs can be present on the stems of bare rooted and potted plants. Feeding larvae can be present on the leaves of potted plants. Other pathways of entry for <i>P. shantungensis</i> are plants for planting of species other than <i>R. pseudoacacia</i> .	
<b>Surveillance information</b>	No surveillance information for this pest is currently available from Turkey.	

### A.3.2. Possibility of pest presence in the nurseries

#### A.3.2.1. Possibility of entry from the surrounding environment

*P. shantungensis* is present in the Marmara Region (Dossier, integration of information), where nurseries producing *R. pseudoacacia* are located. Adults can spread by flying.

Plants are grown in the open field. The pest is present in Turkey and due to its polyphagous nature host plants are widely available in the surrounding environment.

*P. shantungensis* in South Korea has spread very fast after its introduction (Jo et al., 2018) and *R. pseudoacacia* it is reported to be a host.

#### Uncertainties:

The distribution range of the species in Turkey is not known.

The pest pressure in the surrounding environment is not known.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pest to enter the nursery from the surrounding area.

#### A.3.2.2. Possibility of entry with new plants/seeds

*P. shantungensis* is present in the Marmara Region (Dossier, integration of information), where nurseries producing *R. pseudoacacia* are located. Adults can spread by flying.

The pest can be introduced in the production/exporting nurseries via infested young plants coming from forest nurseries or via infested plants of other host species entering the nursery to be grown in the vicinity of Robinia plants.

*P. shantungensis* in South Korea has spread very fast after its introduction (Jo et al., 2016) and *R. pseudoacacia* is reported to be a host.

#### Uncertainties:

- The distribution of the pest in Turkey
- The pest pressure in the surrounding environment

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pest to enter the nursery from the surrounding area.

#### A.3.2.3. Possibility of spread within the nursery

The pest can spread by flying. The plants are grown in an open nursery and dispersal of adults is possible. Other suitable host plant species could be present in the nursery producing *R. pseudoacacia*.

#### Uncertainties:

The presence of other host plant species in the nursery.

Taking into consideration the above evidence and uncertainties, the Panel considers that the spread of the pest within the nursery is possible.

### A.3.3. Information from interceptions

In the EUROPHYT/TRACES NT database there are no interceptions of *P. shantungensis* from Turkey. There are no records of interception of *P. shantungensis* on *Robinia* spp. (all origins).

### A.3.4. Evaluation of the risk reduction options

In the table below, all the RROs currently applied in Turkey are summarised and an indication of their effectiveness on *P. shantungensis* is provided.

Number	Risk mitigation measures	Current measures in Turkey	Evaluation of the measures on <i>P. shantungensis</i>
1	Registration of the nursery and	Forest nurseries (producing young plants) are officially registered and inspected at least once a year.	Nurseries are registered and inspected at least once a year

Number	Risk mitigation measures	Current measures in Turkey	Evaluation of the measures on <i>P. shantungensis</i>
	Phytosanitary management	All nurseries producing ornamental plants are required to be a member of the ornamental plant grower union in Turkey and inspected at least once a year. A plant passport or export certificate is issued.	
2	Physical protection	Some production of the early stages of plants, but not of the older ones to be exported, may take place in production places with netting.	Adults may enter open field nurseries. Adults may be not able to enter production places with nettings <u>Uncertainties</u> No specific information is provided The proportion/stages of plants produced in production places with nettings is not known.
3	Pest monitoring and inspections by the nursery staff during the production process	Nurseries are officially inspected at least once a year and for issuing the export certificate. There are no targeted inspections for the actionable pest. There are guidelines available for detection of pests in agricultural crops (technical instructions for plant pests in agricultural crops – link in Dossier, Section 1).	<u>Uncertainties</u> No detailed information is provided
4	Pesticide treatment	There is a database for registered insecticides in Turkey. There are no products registered for <i>Robinia</i> . There are guidelines available for the management of pests in agricultural crops (technical instructions for plant pests in agricultural crops – link in Dossier, Section 1).	<u>Uncertainties</u> No detailed information is provided, it is unknown which insecticide are used in <i>R. pseudoacacia</i> production.
5	Surveillance	There are no targeted surveys for the actionable pests.	<u>Uncertainties</u> No detailed information is provided
6	Washing of roots	Soil is removed by washing the roots of bare rooted plants.	Root washing has no effect on <i>P. shantungensis</i>
7	Export inspection	Prior to export the consignment is visually inspected	If individual plants are inspected <i>P. shantungensis</i> may be detected. <u>Uncertainty:</u> Sampling intensity in the export inspections

### A.3.5. Overall likelihood of pest freedom

#### A.3.5.1. Reasoning for a scenario which would lead to a reasonably low number of infested consignments

- The pest has a restricted distribution in Turkey and has never been reported in the nurseries or their surrounding environment.
- Insecticide treatments against other insects are effective. There are not many suitable hosts present in the production area.

#### A.3.5.2. Reasoning for a scenario which would lead to a reasonably high number of infested consignments

- There are nurseries producing *R. pseudoacacia* located in the area where *P. shantungensis* is present.
- There are no targeted insecticides treatments against *P. shantungensis*.
- There are suitable hosts in the production area and the pest is a good flyer.
- The growers could be unaware of the presence of *P. shantungensis* in the area.
- *P. shantungensis* is regarded as invasive pest and it could be more widespread in Turkey than currently known.
- There are no targeted surveys for *P. shantungensis*.

#### A.3.5.3. Reasoning for a central scenario equally likely to over- or underestimate the number of infested consignments (Median)

Based on the fact that an early infestation could be easily detected and removed, the Panel judges lower values for being more likely. Therefore, the median was placed closer to the lowest scenario.

#### A.3.5.4. Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/interquartile range)

The main uncertainty is the population pressure in the surrounding environment.



### A.3.5.5. Elicitation outcomes of the assessment of the pest freedom for *Pochazia shantungensis*

The following Tables show the elicited and fitted values for pest infestation/infection (Table A.5) and pest freedom (Table A.6).

**Table A.5:** Elicited and fitted values of the uncertainty distribution of pest infestation by *Pochazia shantungensis* per 10,000 plants

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	1.0					40		75		130					200
EKE	1.5	3.8	7.5	15	25	38	51	79	110	127	147	165	182	192	200

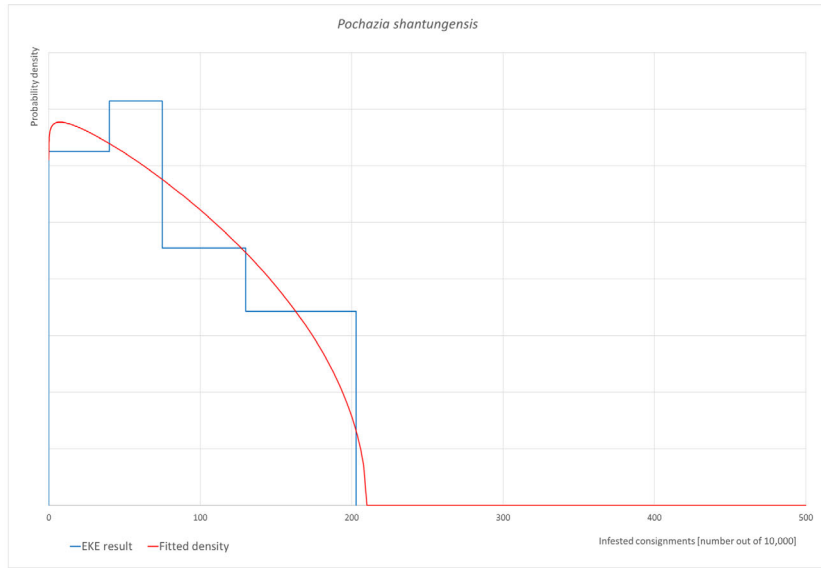
The EKE result is the Beta General distribution (1.0184,1.5041) fitted with @Risk version 7.5.

Based on the numbers of estimated infested plants the pest freedom was calculated (i.e. = 10,000 – the number of infested plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.2.

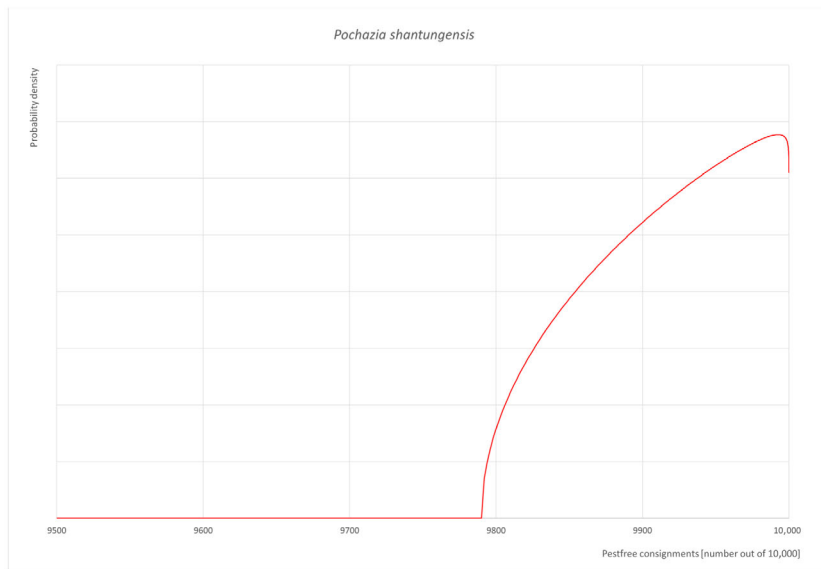
**Table A.6:** The uncertainty distribution of plants free of *Pochazia shantungensis* per 10,000 plants calculated by Table A.5

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9,800					9,870		9,925		9,960					9,999
EKE results	9,800	9,808	9,818	9,835	9,853	9,873	9,890	9,921	9,949	9,962	9,975	9,993	9,993	9,996	9,998

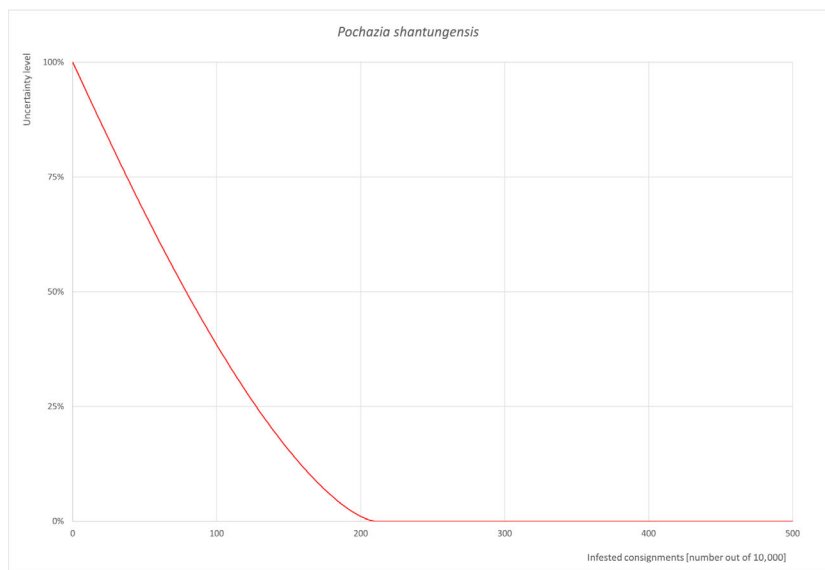
The EKE results are the fitted values.



(a)



(b)



(c)

**Figure A.3:** (a) Elicited uncertainty of pest infestation per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (b) uncertainty of the proportion of pest free plants per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (c) descending uncertainty distribution function of pest infestation per 10,000 plants

### A.3.6. Reference list

- Baek S, Koh SH and Lee JH, 2019. Occurrence model of first instars of *Ricania shantungensis* (Hemiptera: Ricaniidae). *Journal of Asia-Pacific Entomology*, 22, 1040–1045.
- Bourgoin T, Gros P and Stroiński A, 2020. *Pochazia shantungensis* (Chou & Lu, 1977), an important Asiatic invasive pest on fruit trees, first time reported from France (Hemiptera, Fulgoromorpha, Ricaniidae). *Bulletin de la Société Entomologique de France*, 125, 271–272. [https://doi.org/10.32475/bsef\\_2150](https://doi.org/10.32475/bsef_2150)
- Choi YS, Hwang IS, Kang TJ, Lim JR and Choe KR, 2011. Oviposition characteristics of *Ricania* sp. (Homoptera: Ricaniidae), a new fruit pest. *Korean Journal of Applied Entomology*, 50, 367–372.
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- Hizal E, Oztemiz S and Gjonov I, 2019. *Ricania shantungensis* Chou & Lu 1977 (Hemiptera: Fulgoromorpha: Ricanidae) A new invasive insect species in European Turkey. *Fresenius Environmental Bulletin*, 28, 9816–9820.
- Jo SH, Ryu TH, Kwon H, Seo MJ, Yu YM, Yasunaga-Aoki C and Youn YN, 2016. Ecological characteristics and environmentally friendly control strategies of *Pochazia shantungensis* (Hemiptera: Ricaniidae) in Korea. *Journal of the Faculty of Agriculture, Kyushu University*, 61, 299–311.

## Appendix B – Web of Science All Databases Search String

In the table below the search string used in Web of Science is reported. Totally, 2206 papers were retrieved. Titles and abstracts were screened, and 158 pests were added to the list of pests (see Appendix D).

Web of Science All databases	<p><b>TOPIC:</b> "Robinia" OR "Robinia pseudoacacia" OR "R. pseudoacacia" OR "Robinia sp." OR "Robinia spp." OR "black locust"</p> <p><b>AND</b></p> <p><b>TOPIC:</b> : "pathogen" OR "pathogenic bacteria" OR "fung*" OR oomycet* OR myce* OR bacteri* OR virus* OR viroid* OR insect\$ OR mite\$ OR phytoplasm* OR arthropod* OR nematod* OR disease\$ OR infecti* OR damag* OR symptom* OR pest\$ OR vector OR hostplant\$ OR "host plant\$" OR "host" OR "root lesion\$" OR decline\$ OR infestation \$ OR damage\$ OR symptom\$ OR dieback* OR "die back*" OR "malaise" OR aphid\$ OR curculio OR thrip\$ OR cicad\$ OR miner\$ OR borer\$ OR weevil\$ OR "plant bug\$" OR spittlebug\$ OR moth\$ OR mealybug\$ OR cutworm\$ OR pillbug\$ OR "root feeder\$" OR caterpillar\$ OR "foliar feeder\$" OR virosis OR viroses OR blight\$ OR wilt\$ OR wilted OR canker OR scab\$ OR "rot" OR "rots" OR "rotten" OR "damping off" OR "damping-off" OR blister\$ OR "smut" OR "mould" OR "mold" OR "damping syndrome\$" OR mildew OR scald\$ OR "root knot" OR "root-knot" OR rootknot OR cyst\$ OR "dagger" OR "plant parasitic" OR "parasitic plant" OR "plant\$parasitic" OR "root feeding" OR "root\$feeding"</p> <p><b>NOT</b></p> <p><b>TOPIC:</b> "fertil" OR "Mulching" OR "Nutrient" OR "Pruning" OR "drought" OR "human virus" OR "animal disease" OR "plant extracts" OR "immunological" OR "purified fraction" OR "traditional medicine" OR "medicine" OR "mammal" OR "bird" OR "human disease" OR "toxicity" OR "weed control" OR "salt stress" OR "salinity" OR "cancer" OR "pharmacology" OR "glucoside" OR "metabolites" OR "cross compatibility" OR "volatile" OR "anti-inflammatory activity" OR "shelf life" OR "synthesis" OR "scent volatile" OR "biodiesel" OR "poisoning" OR "toxicity" OR "biofertilizer" OR "cold tolerance" OR "propagation" OR "nitrogen fixation" OR "biomass" OR "siviculture" OR "honey" OR "heavy metal pollution" OR "bacterial community" OR "honeybee" OR "pollinator" OR "ammino acids profile" OR "nutraceutical" OR "urban wastelands" OR "metals")</p> <p><b>NOT</b></p> <p><b>TOPIC:</b> ("Aphis craccivora" OR "Aulacorthum solani" OR "Alfalfa mosaic virus" OR "Apatte monachus" OR "Appendiseta robiniae" OR "Armillaria mellea" OR "Armillaria ostoyae" OR "Bean yellow mosaic virus" OR "Bionectria ochroleuca" OR "Chaepus dorsalis" OR "Chalara elegans" OR "Clanis bilineata" OR "Cydia trasias" OR "Dereodus pollinosus" OR "Diplodia seriata" OR "Ecdytolopha insiticia" OR "Elasmopalpus lignosellus" OR "Erysiphe trifolii" OR "Fomitiporia mediterranea" OR "Fusarium oxysporum" OR "Ganoderma lucidum" OR "Gibberella intricans" OR "Helicobasidium mompa" OR "Lymantria dispar" OR "Lymantria obfuscata" OR "Maconellicoccus hirsutus" OR "Macrosaccus robinella" OR "Megacyllene robiniae" OR "Megaplatypus mutatus" OR "Metcalfa pruinosa" OR "Nectria cinnabarina" OR "Odontota dorsalis" OR "Orgyia leucostigma" OR "Parectopa robinella" OR "Parthenolecanium corni" OR "Parthenolecanium persicae" OR "Phaeoisariopsis robiniae" OR "Phloeospora robiniae" OR "Phyllactinia guttata" OR "Phymatotrichopsis omnivora" OR "Phytophthora drechsleri" OR "Pratylenchus penetrans" OR "Pythium myriotylum" OR "Tobacco mosaic virus" OR "Tremex fuscicornis" OR "Xyleborus dispar" OR "euzera coffeae" OR "atocala vidua" OR "Colias philodice" OR "Hypercompe scribonia" OR "Acrionicta americana" OR "Actias luna" OR "Acyrtosiphon caraganae" OR "Acyrtosiphon gossypii" OR "Acyrtosiphon pisum" OR "Aeolesthes sarta" OR "Aglaspora anomia" OR "Aglaspora profusa" OR "Agonopterix cratia" OR "Agonopterix robinella" OR "Agonopterix sanguinella" OR "Alsophila pometaria" OR "Alternaria alternata" OR "Alternaria fasciculata" OR "Alternaria tenuis" OR "Alternaria tenuissima" OR "Amyeloides transitella" OR "Anoplophora chinensis" OR "Anoplophora glabripennis" OR "Anticarsia gemmatalis" OR "Aonidiella aurantii" OR "Aphis solanella" OR "Aphis cracciae" OR "Aphis craccivora" OR "Aphis craccivora ssp." OR "Aphis fabae" OR "Aphis gossypii" OR "Aphis pseudoacaciae" OR "Aphis spiraeola" OR "Aplosporella chlorostroma" OR "Aplosporella robiniae" OR "Appendiseta robiniae" OR "Appendiseta robiniae" OR "Apriona germari")</p>
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OR "Apriona rugicollis" OR "Archips argyrospila" OR "Arcyria magna var. rosea" OR "Armillaria mellea" OR "Arthrotrichum oligospora" OR "Ascalapha odorata" OR "Ascochyta robiniae" OR "Ascotis selenaria" OR "Aspidiotus nerii" OR "Auricularia polytricha" OR "Automerella flexuosa" OR "Automeris annulata" OR "Automeris banus" OR "Automeris cecrops" OR "Automeris complicata" OR "Automeris duchartrei" OR "Automeris excreta" OR "Automeris granulosa" OR "Automeris hamata" OR "Automeris harrisorum" OR "Automeris incarnata" OR "Automeris inornata" OR "Automeris io" OR "Automeris iris" OR "Automeris jucunda" OR "Automeris leucane" OR "Automeris liberia" OR "Automeris macphaili" OR "Automeris maeonia" OR "Automeris midea" OR "Automeris moloneyi" OR "Automeris montezuma" OR "Automeris moresca" OR "Automeris randa" OR "Automeris styx" OR "Automeris tridens" OR "Automeris zozine" OR "Barea confusella" OR "Batia lunaris" OR "Batia unitella" OR "Bean yellow mosaic potyvirus" OR "Bionectria ochroleuca" OR "Biston betularia" OR "Biston robustus" OR "Bjerkandera adusta" OR "Botryosphaeria abrupta" OR "Botryosphaeria australis" OR "Botryosphaeria berengeriana" OR "Botryosphaeria dothidea" OR "Botryosphaeria ribis" OR "Botryosphaeria sp." OR "Botrytis cinerea" OR "Bruchidius cisti" OR "Bryobia angustisetis" OR "Bryobia praetiosa" OR "Bryobia tadjikistanica" OR "Byssosphaeria xestothela" OR "Byturus tomentosus" OR "Cacoecimorpha pronubana" OR "Cactodera betulae" OR "Cadophora hiberna" OR "Calonectria dearnessii" OR "Calonectria kyotensis" OR "Caloptilia stigmatella" OR "Calycellina populina" OR "Calyculospaeria collapsa" OR "Camarosporidiella celtidis" OR "Camarosporidiella mirabellensis" OR "Camarosporidiella robinicola" OR "Camarosporidiella schulzeri" OR "Camarosporium caraganae" OR "Camarosporium elongatum" OR "Camarosporium hendersonioides" OR "Camarosporium pseudacaciae" OR "Camarosporium robiniae" OR "Camarosporium triacanthi" OR "Camillea tinctor" OR "Catocala amestris" OR "Catocala illecta" OR "Cecidomyia orbiculata" OR "Cecidomyia prunicola" OR "Celastrina argiolus" OR "Celiptera frustulum" OR "Ceraceomyces americanus" OR "Cerambyx cerdo" OR "Ceratomia amyntor" OR "Cercophora sulphurella" OR "Cercospora curvata" OR "Ceutosporea robiniae" OR "Chaetosphaerella fusca" OR "Chinavia hilaris" OR "Chionaspis gleditsiae" OR "Chondrostereum purpureum" OR "Chorostate oncostoma" OR "Chrysaster ostensackenella" OR "Chrysomphalus anionidum" OR "Chrysomphalus dictyospermi" OR "Chrysopelia purpuriella" OR "Cilioplea coronata subsp. montana" OR "Cinabra hyperbius" OR "Citioica anthonilis" OR "Cladosporium allicinum" OR "Cladosporium epiphyllum" OR "Cladosporium fumago" OR "Cladosporium herbarum" OR "Cladosporium herbarum f. epixylon" OR "Cladosporium nigrellum" OR "Cladosporium robiniae" OR "Cladosporium sp." OR "Clathrospora turkestanica" OR "Clavaspis ulmi" OR "Clitocybe illudens" OR "Coccus erion" OR "Coccus hesperidum" OR "Coccus hesperidum hesperidum" OR "Coccus trichodes" OR "Coeliades forestar" OR "Colias electo" OR "Colletotrichum destructivum" OR "Colletotrichum gloeosporioides" OR "Colletotrichum glycines" OR "Colletotrichum nymphaeae" OR "Colletotrichum truncatum" OR "Collybia velutipes" OR "Comstockaspis perniciosa" OR "Concaedes carinata" OR "Coniochaeta pulveracea" OR "Coniosporium sp." OR "Coniothyrium acaciae" OR "Coniothyrium fuckelii" OR "Corticium rolfsii" OR "Coryneum trimerum" OR "Crepidotus sp." OR "Crustoderma marianum" OR "Cryphonectria radicalis" OR "Cryptosphaeria millepunctata" OR "Cryptosporium robiniae" OR "Cryptovalsa nitschkei" OR "Cryptovalsa rabenhorstii" OR "Cucurbitoditis pithyophila" OR "Cucurbitaria elongata" OR "Cucurbitaria spartii" OR "Cylindrocarpon destructans" OR "Cylindrocladium floridanum" OR "Cylindrosporium robiniae" OR "Cylindrosporium solitarium" OR "Cyphellopsis anomala" OR "Cytospora chrysosperma" OR "Cytospora coccinea" OR "Cytospora leucosperma" OR "Cytospora ludibunda" OR "Cytospora sp." OR "Dacrymycella fertilissima" OR "Daedalea confragosa" OR "Daedalea quercina" OR "Daedalea unicolor" OR "Daldinia childiae" OR "Daldinia vernicosa" OR "Dasylophia anguina" OR "Datana integerrima" OR "Datana ministra" OR "Diaporthe fasciculata" OR "Diaporthe oncostoma" OR "Diaspidiotus africanus" OR "Diaspidiotus ancyclus" OR "Diaspidiotus juglansregiae" OR "Diaspidiotus leguminosum" OR "Diaspidiotus osborni" OR "Diaspidiotus uvae" OR "Diatrype sp." OR "Diatrypella sp." OR "Dictyothyria ananasicola" OR "Didymosphaeria robiniae" OR "Dinemasporium decipiens" OR "Dinemasporium hispidulum" OR "Dinemasporium hispidulum var. brachychaetum" OR "Dinemasporium pulvis-pyrius" OR "Dinemasporium robiniae" OR "Diplodia photiniaecola" OR "Diplodia profusa" OR "Diplodia seriata" OR "Diplozythiella robiniae" OR "Dirphia panamensis" OR "Discosia jordanovii" OR "Dothidotthia robiniae" OR "Dothiorella glandulosa" OR "Dothiorella robiniae" OR "Dothiorella vidmadera" OR

"Drosicha turkestanica" OR "Eacles imperialis" OR "Eacles oslari" OR "Ecdytoplopha insiticiiana" OR "Ecdytoplopha punctidiscanum" OR "Ectomyeloides ceratoniae" OR "Ectostroma robiniae" OR "Ectropis bistortata" OR "Ectropis obliqua" OR "Elasmopalpus lignosellus" OR "Enchenopa binotata" OR "Endothiella robiniae" OR "Eotetranychus matthyssei" OR "Eotetranychus populi" OR "Eotetranychus sexmaculatus" OR "Eotetranychus tiliarium" OR "Eotrama orientalis" OR "Epargyreus clarus" OR "Epargyreus tmolis" OR "Epicallima formosella" OR "Epicoccum nigrum" OR "Epidiaspis leperii" OR "Erthesina fullo" OR "Erynnis funeralis" OR "Erynnis icelus" OR "Erynnis zarucco" OR "Erysiphe communis f. robiniae" OR "Erysiphe martii" OR "Erysiphe palczewskii" OR "Erysiphe polygoni" OR "Erysiphe polygoni f. robiniae-hispidae" OR "Erysiphe pseudacaciae" OR "Erysiphe robiniae var. chinensis" OR "Erysiphe robiniae var. robiniae" OR "Erysiphe robinicola" OR "Erysiphe sp." OR "Erysiphe subtrichotoma" OR "Erysiphe trifolii" OR "Esperia oliiviella" OR "Etiella zinckenella" OR "Euclea dolliana" OR "Eulecanium circumfluum" OR "Euparthenos nubilus" OR "Euproctis chrysoorrhoea" OR "Eurema hecabe" OR "Eurema mexicana" OR "Eutypa heteracantha" OR "Eutypa lata" OR "Eutypa ludibunda" OR "Eutypa scoparia" OR "Eutypa subtecta" OR "Eutypella capillata" OR "Eutypella leprosa" OR "Eutypella microcarpa" OR "Eutypella scoparia" OR "Eutypella sp." OR "Eutypella tumida" OR "Eutypella venusta" OR "Euwallacea fornicatus" OR "Exidiopsis calcea" OR "Exidiopsis paniculata" OR "Favolus squamosus" OR "Favolus squamosus var. squamosus" OR "Filatima ornatifimbriella" OR "Filatima pseudacaciella" OR "Filatima xanthuris" OR "Flammulina velutipes" OR "Fomes applanatus" OR "Fomes connatus" OR "Fomes cytisinus" OR "Fomes fraxineus" OR "Fomes ignarius" OR "Fomes leucophaeus" OR "Fomes rimosus" OR "Fomes robiniae" OR "Fomes robustus" OR "Fomes vinosus" OR "Fomitella fraxinea" OR "Fomitiporia punctata" OR "Fomitopsis ohioensis" OR "Fomitopsis pinicola" OR "Fomitopsis semilaccata" OR "Fracchiata heterogenea" OR "Fulvifomes robiniae" OR "Fumago sp." OR "Fusarium avenaceum" OR "Fusarium equiseti" OR "Fusarium herbarum" OR "Fusarium lateritium" OR "Fusarium oligoseptatum" OR "Fusarium oxysporum" OR "Fusarium pseudacaciae" OR "Fusarium sambucinum var. coeruleum" OR "Fusarium sarcochroum" OR "Fusarium scoleoides" OR "Fusarium solani f. sp. robiniae" OR "Fusarium sp." OR "Fusarium sporotrichioides" OR "Fusarium spp" OR "Fusarium ventricosum" OR "Fusicladium robiniae" OR "Ganoderma applanatum" OR "Ganoderma lucidum" OR "Ganoderma resinaceum" OR "Gibberella baccata" OR "Gibberella lateritia" OR "Gloeosporium revolutum" OR "Glomerella cingulata" OR "Guignardia robiniae" OR "Gynanisa maja" OR "Gyothrix pediculata" OR "Halyomorpha halys" OR "Halysidota tessellaris" OR "Hapalopilus croceus" OR "Harpographium fasciculatum" OR "Helicobasidium brebissonii" OR "Helicobasidium mompa" OR "Helicobasidium purpureum" OR "Helicotylenchus dihystera" OR "Heliococcus bohemicus" OR "Heliococcus destructor" OR "Heliomata cycladata" OR "Helminthosporium velutinum" OR "Hemiberlesia lataniae" OR "Hemiberlesia rapax" OR "Hemileuca lex" OR "Hemileuca rubridorsa" OR "Hemileuca tricolor" OR "Hendersonia obscura" OR "Hendersonia pseudacaciae" OR "Hendersonula macrosperma" OR "Herpotrichia lanuginosa" OR "Heterodera zeae" OR "Heterosporium robiniae" OR "Hirschioporus lacteus" OR "Homadaula anisocentra" OR "Hyadaphis foeniculi" OR "Hyalophora cecropia" OR "Hylesia lineata" OR "Hypena scabra" OR "Hyperchiria nausica" OR "Hyphantria cunea" OR "Hyphodontia aspera" OR "Hyphodontia sambuci" OR "Hysterium insidens" OR "Icerya purchasi" OR "Icerya purchasi" OR "Imbrasia ertli" OR "Imbrasia oyemensis" OR "Inonotus hispidus" OR "Inonotus quercustris" OR "Irpex lacteus" OR "Isariopsis sp." OR "Lachnus tropicalis" OR "Laetiporus sulphureus" OR "Laetiporus sulphureus var. miniatus" OR "Laetiporus versisporus" OR "Lampides boeticus" OR "Lasiosphaeria hispida" OR "Lecanodiaspis prosopidis" OR "Lecanodiaspis rufescens" OR "Leiopus nebulosus" OR "Lepidosaphes malicola" OR "Lepidosaphes ulmi" OR "Lepidosaphes yanagicola" OR "Leptoporus litschaueri" OR "Leptosphaeria petiolicola" OR "Leucanella aspera" OR "Leucanella leucane" OR "Leucanella memusae" OR "Leucodiaporthe robiniae" OR "Leucoptera robinella" OR "Leveillula taurica" OR "Libertella robiniae" OR "Liothula sp." OR "Lonomia cynira" OR "Lopharia cinerascens" OR "Lophiotrema neohysterioides" OR "Lophocampa caryae" OR "Lophocampa maculata" OR "Lopholeucaspis japonica" OR "Ludia delegorguei" OR "Lycorma delicatula" OR "Lymantria dispar" OR "Maconellicoccus hirsutus" OR "Macrophoma numerosa" OR "Macrosiphum euphorbiae" OR "Macrosporium heteronemum" OR "Malacosoma americana" OR "Malacosoma californica" OR "Malacosoma distria" OR "Marasmius robinianus" OR "Marasmius sp." OR "Massaria anomia" OR "Massaria



inquinans" OR "Massaria sp." OR "Matsumuraeses falcana" OR "Megaplatypus mutatus" OR "Melanaspis corticosa" OR "Melanconium viscosum" OR "Meloidogyne incognita" OR "Meloidogyne sp." OR "Mesocriconema xenoplax" OR "Mesosa nebulosa" OR "Metasphaeria pseudacaciae" OR "Microsphaera baumleri" OR "Microsphaera diffusa" OR "Microsphaera pseudacaciae" OR "Microsphaera robiniae" OR "Microsphaera subtrichotoma" OR "Microsphaera trifolii" OR "Microsphaera trifolii var. Trifolii" OR "Misturatosphaeria mariae" OR "Molippa nibasa" OR "Molippa rosea" OR "Molippa sabina" OR "Mononychellus virginianensis" OR "Mycosphaerella pseudacaciae" OR "Mycosphaerella sp." OR "Myxormia convexula" OR "Myxosporium sp." OR "Myzus persicae" OR "Nathrius brevipennis" OR "Nectria cinnabarina" OR "Nectria coccinea" OR "Nectria dematiosa" OR "Nectria galligena" OR "Nectria haematococca" OR "Nectria ochroleuca" OR "Nectria pallidula" OR "Nectria peziza" OR "Nectria pseudotrachia" OR "Nectria ventricosa" OR "Nematocampa filamentaria" OR "Nematocampa limbata" OR "Nematocampa resistaria" OR "Nematus tibialis" OR "Neocosmospora silvicola" OR "Neocosmospora sp." OR "Neonectria punicea" OR "Neopeckia diffusa" OR "Neopulvinaria innumerabilis" OR "Neopulvinaria innumerabilis" OR "Nephtopterix subcaesiella" OR "Nephtopterix virgatella" OR "Neptis philyra" OR "Neptis sappho" OR "Nipaecoccus filamentosus" OR "Obolodiplosis robiniae" OR "Ocrisia robinella" OR "Odontia alutacea" OR "Oidium ramosissimum" OR "Oidium sp." OR "Oiketicus abbotii" OR "Oiketicus platensis" OR "Oiketicus toumey" OR "Oiketicus townsendi" OR "Oligoporus guttulatus" OR "Oncopodiella trigonella" OR "Orgyia leucostigma" OR "Orgyia mixta" OR "Orthosia hibisci" OR "Otiorhynchus ligustici" OR "Oxyporus latemarginatus" OR "Panonychus ulmi" OR "Papaipema nebris" OR "Papaya ringspot virus" OR "Paradirphia boudinoti" OR "Paradirphia hoegei" OR "Paradirphia lasiocampina" OR "Paradirphia semirosea" OR "Paralongidorus maximus" OR "Paranthrene robiniae" OR "Paraputo porosus" OR "Parectopa lepedezaefoliella" OR "Parectopa robinella" OR "Parlatoreopsis chinensis" OR "Parlatoreopsis longispina" OR "Parlatoria oleae" OR "Parthenolecanium corni" OR "Parthenolecanium corni" OR "Parthenolecanium corni" OR "Parthenolecanium persicae" OR "Parthenolecanium pruinatum" OR "Parthenolecanium rufulum" OR "Passalora robiniae" OR "Peanut stunt cucumovirus" OR "Pellicularia filamentosa" OR "Peniophora firma" OR "Peniophora heterocystidia" OR "Perenniporia fraxinea" OR "Perenniporia medulla-panis" OR "Perenniporia robiniphila" OR "Perenniporia tenuis" OR "Periphoba hircia" OR "Pero honestaria" OR "Peroneutypa scoparia" OR "Pestalotia sp" OR "Phaeoisariopsis robiniae" OR "Phakopsora pachyrhizi" OR "Phalera bucephala" OR "Phanerochaete ericina" OR "Phanerochaete filamentosa" OR "Phanerochaete sanguinea" OR "Phellinus gilvus" OR "Phellinus linteus" OR "Phellinus pomaceus" OR "Phellinus punctatus" OR "Phellinus rimosus" OR "Phellinus robiniae" OR "Phellinus robustus" OR "Phellinus torulosus" OR "Phenacoccus aceris" OR "Phialocephala hiberna" OR "Phlebia chrysocreas" OR "Phloeospora robiniae" OR "Pholiota squarrosa" OR "Phoma caraganae" OR "Phoma fuckelii" OR "Phoma hauderingii" OR "Phoma labens" OR "Phoma macrostoma" OR "Phoma sp." OR "Phomopsis oncostoma" OR "Phomopsis pseudacaciae" OR "Phomopsis sp." OR "Phyllactinia corylea" OR "Phyllactinia fraxini" OR "Phyllactinia guttata" OR "Phyllactinia robiniae" OR "Phyllactinia suffulta" OR "Phyllonorycter fitchella" OR "Phyllonorycter gemma" OR "Phyllonorycter morrisella" OR "Phyllonorycter robinella" OR "Phyllonorycter uhlerella" OR "Phyllosticta advena" OR "Phyllosticta capitalensis" OR "Phyllosticta neomexicana" OR "Phyllosticta pseudacaciae" OR "Phyllosticta robiniae" OR "Phyllosticta robinella" OR "Phyllosticta sp." OR "Phymatotrichum omnivorum" OR "Physalospora obtusa" OR "Phytophthora asiatica" OR "Phytophthora cactorum" OR "Phytophthora cambivora" OR "Phytophthora cinnamomi" OR "Phytophthora cinnamomi var. robiniae" OR "Phytophthora citrophthora" OR "Phytophthora drechsleri" OR "Phytophthora megasperma" OR "Phytophthora megasperma var. megasperma" OR "Phytophthora nicotianae" OR "Phytophthora parasitica" OR "Phytophthora plurivora" OR "Phytophthora richardiae" OR "Phytophthora sp." OR "Planococcus citri" OR "Pleonectria austroamericana" OR "Pleospora aureliana" OR "Pleospora herbarum" OR "Pleospora leguminum" OR "Pleospora petiolorum" OR "Pleospora robiniae" OR "Pleospora turkestanica" OR "Pleurotus ostreatus" OR "Polyporus alveolaris" OR "Polyporus bififormis" OR "Polyporus compactus" OR "Polyporus gilvus" OR "Polyporus hirsutus" OR "Polyporus lucidus" OR "Polyporus obtusus" OR "Polyporus rhodophaeus" OR "Polyporus robinophilus" OR "Polyporus squamosus" OR "Polyporus sulphureus" OR "Polyporus unicus" OR "Polyura sempronius" OR "Popillia japonica" OR "Poria ambigua" OR "Poria ferruginosa" OR "Poria incrassata" OR "Poria robusta" OR "Poria umbrina" OR

"Poria unita" OR "Pratylenchus penetrans" OR "Pratylenchus vulnus" OR "Prionoxystus robiniae" OR "Proeulia auraria" OR "Prosopophora robiniae" OR "Psathyrella candolleana" OR "Pseudanthracia coracias" OR "Pseudaulacaspis pentagona" OR "Pseudautomeris latus" OR "Pseudocercospora sp." OR "Pseudococcus adonidum" OR "Pseudococcus comstocki" OR "Pseudococcus longispinus" OR "Pseudococcus maritimus" OR "Pseudococcus viburni" OR "Pseudodirphia eumedide" OR "Pseudodirphia eumedoides" OR "Pseudoidium sp." OR "Pseudolachnea hispidula" OR "Pseudovalsa profusa" OR "Psilocorsis cryptolechiella" OR "Pterostoma sinicum" OR "Ptychogaster cubensis" OR "Pulvinaria regalis" OR "Pulvinaria vitis" OR "Pycnoporus coccineus" OR "Pyrosis undulosa" OR "Pyrrhia umbra" OR "Pythium myriotylum" OR "Pythium sp." OR "Pythium spp" OR "Radulomyces confluens" OR "Rebentischia massalongii" OR "Rectifusarium robinianum" OR "Rhabdospora breviuscula" OR "Rhizina undulata" OR "Rhizoctonia bataticola" OR "Rhizoctonia solani" OR "Rhodocyphella cupuliformis" OR "Rosellinia aquila" OR "Rosellinia corticium" OR "Rosellinia mastoidea" OR "Rosellinia saccardoii" OR "Rosellinia subiculata" OR "Rungaspis capparis" OR "Rungaspis macrolobis" OR "Russellaspis pustulans pustulans" OR "Schiffermuelleria procerella" OR "Schizura concinna" OR "Schizura unicornis" OR "Sclerodon strigosus" OR "Sclerotium bataticola" OR "Sclerotium rolfsii" OR "Scolicosporium pauciseptatum" OR "Scytinostroma hemidichophyticum" OR "Sebacina calcea" OR "Selenisa sueroides" OR "Semiiothisa aemulataria" OR "Semiiothisa nigrocomma" OR "Semiiothisa ocellinata" OR "Septoria curvata" OR "Septoria pseudacaciae" OR "Septoria robiniae" OR "Septoria sp." OR "Sharpus bronni" OR "Sicya snoviaria" OR "Sinoe robinella" OR "Sitona lineatus" OR "Sitona ononidis" OR "Sitona waterhousei" OR "Situlaspis yuccae" OR "Sparganopsis sulfureana" OR "Sphaerella pseudacaciae" OR "Sphaerella robiniae" OR "Sphaeropsis malorum" OR "Sphaeropsis robiniae" OR "Spongipellis unicolor" OR "Sporidesmium njalaense" OR "Steccherinum ochraceum" OR "Sterium gausapatum" OR "Stigmina trimera" OR "Stilbospora angustata" OR "Strawberry latent ringspot (?) nepovirus" OR "Streblote cristata" OR "Strickeria kochii" OR "Stysanus microsporus" OR "Syssphinx albolineata" OR "Syssphinx bicolor" OR "Syssphinx bisecta" OR "Syssphinx gomezi" OR "Syssphinx hubbardi" OR "Syssphinx molina" OR "Syssphinx montana" OR "Syssphinx petersii" OR "Teichospora hispida" OR "Teichospora nigrobrunnea" OR "Teichospora trabicola" OR "Tenuipalpoides dorychaeta" OR "Tetracis cachexiata" OR "Tetranychus canadensis" OR "Tetranychus kanzawai" OR "Tetranychus ludeni" OR "Tetranychus neocaledonicus" OR "Tetranychus pacificus" OR "Tetranychus schoenei" OR "Tetranychus turkestanii" OR "Tetranychus urticae" OR "Thanatephorus cucumeris" OR "Thielavia basicola" OR "Thyridium vestitum" OR "Thyridopteryx ephemeraeformis" OR "Thyronectria austroamericana" OR "Thyrostroma negundinis" OR "Thyrostroma robiniae" OR "Tinocallis zelkowsae" OR "Tomato black ring nepovirus" OR "Tomentella brunneorufa" OR "Tomentella bryophila" OR "Tomentella lateritia" OR "Tomentella punicea" OR "Toumeyella quadrifasciata" OR "Trametes robiniofila" OR "Trametes trogii" OR "Trechispora polyporoidea" OR "Trematosphaeria sp." OR "Trichodorus giennensis" OR "Trichoderma campestris" OR "Trirachys sartus" OR "Trybliidiella rufula" OR "Trybliidiella sp." OR "Tubercularia minor" OR "Tubercularia vulgaris" OR "Tylenchorhynchus claytoni" OR "Tympanis onpularis" OR "Urota sinope" OR "Valsa ceratophora" OR "Valsa cincta" OR "Valsa heteracantha" OR "Valsa personata" OR "Valsa sp." OR "Valsa venusta" OR "Valsaria insitiva" OR "Vanduzeeia arquata" OR "Vasates allotrichus" OR "Vasates robiniae" OR "Verticillium albo-atrum" OR "Verticillium dahliae" OR "Volutella comata" OR "Watermelon mosaic virus" OR "Xanthochrous hispidus" OR "Xylaria carpophila" OR "Xylaria cornu-damae" OR "Xylaria hypoxylon" OR "Xylaria longiana" OR "Xylaria polymorpha" OR "Xylella fastidiosa" OR "Xylella fastidiosa subsp. multiplex" OR "Zale undularis" OR "Zale unilineata" OR "Zeuzera pyrina" OR "Zythia moelleriana")

## Appendix C – List of pests that can potentially cause an effect not further assessed

**Table C.1:** List of potential pests not further assessed

Pest name	EPPO code	Group	Pest present in Turkey	Present in the EU	<i>Robinia</i> confirmed as a host (reference)	Pest can be associated with the commodity	Impact	Justification for inclusion in this list
<i>Lepidosaphes malicola</i>	LEPSML	Insects	Yes	Yes (Greece and Bulgaria)	Yes	Yes	Yes	Pest of apple, with restricted distribution in the EU (Greece and Bulgaria). No official measures in place in these MSs.
<i>Botryosphaeria australis</i>		Fungi	Yes	Portugal, Italy, Spain	Yes	Yes	Yes	Pathogen with restricted distribution in the EU, No official measures in place in these MSs. Possible impact.
<i>Ectostroma robiniae</i>		Fungi	Yes	Romania	Yes	Yes	Uncertain	Pathogen with restricted distribution in the EU, No official measures in place in these MSs. Uncertainty about the impact.
<i>Fusicoccum depressum</i>	FUSCDE	Fungi	Yes	Poland	Yes	Yes	Uncertain	Pathogen with restricted distribution in the EU, No official measures in place in these MSs. Uncertainty about the impact.
<i>Phomopsis pseudacaciae</i>	LEPSML	Fungi	Yes	Austria, Hungary and France	Yes	Yes	Uncertain	Pathogen with restricted distribution in the EU, No official measures in place in these MSs. Uncertainty about the impact.

**Appendix D – Excel file with the pest list of *Robinia*.**

Appendix D can be found in the online version of this output (in the 'Supporting information' section): <https://doi.org/10.2903/j.efsa.2021.6568>