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SCIENTIFIC OPINION

Commodity risk assessment of *Acer* plants from Ukraine

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The declarations of interest of all scientific experts active in EFSA's work are available at https://open.efsa.europa.eu/experts

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 *Acer* plants (*A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharum*, *A. saccharinum*, *A. tataricum* and *A. tataricum* subsp. *ginnala*, *Acer*×*freemani*) imported from Ukraine as dormant plants: (a) 1–4 years old bare root plants and (b) 1–2 years old plants in pots, taking into account the available scientific information, including the technical information provided by Ukraine. All pests associated with the commodity were evaluated against specific criteria for their relevance for this opinion. Two EU protected zone quarantine pests, i.e. *Cryphonectria parasitica*, and *Entoleuca mammata* and one EU-quarantine pest, i.e. *Lopholeucaspis japonica* fulfilled all relevant criteria and were selected for further evaluation. For the selected pests, the risk mitigation measures proposed in the technical dossier from Ukraine were evaluated taking into account the possible limiting factors. For the selected pests an expert judgement is given on the likelihood of pest freedom taking into consideration the distribution of the pest in Ukraine, risk mitigation measures acting on the pest and uncertainties associated with the assessment. The degree of pest freedom varies among the pests evaluated, with *L. japonica* being the pest most frequently expected on imported plants. The Expert Knowledge Elicitation (EKE) indicated with 95% certainty that between 9748 and 10,000 per 10,000 bare root 1–4 years old plants will be free from *L. japonica*.

KEYWORDS

European Union, maple, pathway risk assessment, plant health, plant pest, quarantine

CONTENTS

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,[1] 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 Regulation (EU) 2018/2019.[2] Scientific opinions are therefore needed to support the European Commission and the Member States (MSs) 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,[3] 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 MSs and other international organisations 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 *Acer* species from Ukraine taking into account the available scientific information, including the technical dossier provided by Ukraine.

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 *Acer* species from Ukraine following the Guidance on commodity risk assessment for the evaluation of high-risk plant dossiers (EFSA PLH Panel, 2019) and the protocol for commodity risk assessments as presented in the EFSA standard protocols for scientific assessments (EFSA PLH Panel, 2024; Gardi et al., 2024), taking into account the available scientific information, including the technical information provided by Ukraine.

The EU-quarantine pests that are regulated as a group in the Commission Implementing Regulation (EU) 2019/2072[4] 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 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, Monaco, Montenegro, North Macedonia, Norway, Russia only the following parts: Central Federal District (Tsentralny federalny okrug), Northwestern Federal District (SeveroZapadny federalny okrug), Southern

[1]Regulation (EU) 2016/2031 of the European Parliament 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.

[2]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.

[3]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.

[4]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.

Federal District (Yuzhny federalny okrug), North Caucasian Federal District (Severo-Kavkazsky federalny okrug) and Volga Federal District (Privolzhsky federalny okrug), San Marino, Serbia, Switzerland, Türkiye, Ukraine and the United Kingdom (except Northern Ireland[5]).

Consequently, for those countries,

(i) 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.
(ii) any pest found in a European country that belongs to the same denomination as the pests listed as non-European populations or isolates in Annex II of Implementing Regulation (EU) 2019/2072, should be considered as European populations or isolates and should not be considered in the assessment of those countries.

Pests listed as 'Regulated Non-Quarantine Pest (RNQP)' in Annex IV of the Commission Implementing Regulation (EU) 2019/2072, and deregulated pests (i.e. pest which were listed as quarantine pests in the Council Directive 2000/29/EC and were deregulated by Commission Implementing Regulation (EU) 2019/2072) were not considered for further evaluation.

In case a pest is at the same time regulated as a RNQP and as a Protected zone Quarantine pest, in this Opinion it should be evaluated as Quarantine pest.

In its evaluation the Panel:

- Checked whether the provided information in the technical dossier (hereafter referred to as 'the Dossier') provided by the applicant (Ukraine, The State Service of Ukraine on Food Safety and Consumer Protection – SSUFSCP) 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, hereafter referred to as 'EU-quarantine pests') and other relevant pests present in Ukraine 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 Ukraine in Commission Implementing Regulation (EU) 2019/2072 and/or in the relevant legislative texts for emergency measures and if the specific country is in the scope of those emergency measures. The assessment was restricted to whether the applicant country implements 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 SSUFSCP of Ukraine.

2 | DATA AND METHODOLOGIES

2.1 | Data provided by Ukraine

The Panel considered all the data and information (hereafter called 'the Dossier') provided in December 2023, including the additional information provided by the SSUFSCP of Ukraine in April 2025, 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.

TABLE 1 Structure and overview of the Dossier.

Dossier section	Overview of contents	Filename
1.1	Technical dossier	Acer Technical Dossier Appendix_1_Technical_dossier_ Acer spp._Ukraine Appendix_2_Technical_dossier_Table_D1_ Acer spp._Ukraine Appendix_3_Technical_dossier_Table_D2_ Acer spp._Ukraine Appendix_4_Technical_dossier_Table_E1_ Acer spp._Ukraine Appendix_B_Technical_dossier_Acer spp._Ukraine
1.2	Additional information: answers	EFSA-Q-2023-00743, *Acer* species (not for public dissemination version)

[5]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 Windsor Framework in conjunction with Annex 2 to that Framework, for the purposes of this Opinion, references to the United Kingdom do not include Northern Ireland.

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

Table 2 shows the main data sources used by the SSUFSCP to compile the Dossier (details on literature searches can be found in the Dossier Section 1.1):

TABLE 2 Database sources used in the literature searches by Ukraine.

Database	Platform/link
CABI CAB abstracts	https://www.cabidigitallibrary.org/product/ca
CABI Crop Protection Compendium	https://www.cabi.org/cpc/
EPPO Global Database	https://gd.eppo.int/
GBIF	https://www.gbif.org/
Google Scholar	https://scholar.google.com/

2.2 | Literature searches performed by EFSA

Literature searches in different databases were undertaken by EFSA to complete a list of pests potentially associated with *Acer griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala* and the hybrid *A.*×*freemanii*. The following searches were combined: (i) a general search to identify pests reported on *A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala*, *A.*×*freemanii* in the databases, (ii) a search to identify any EU-quarantine pest reported on *Acer* as genus and subsequently (iii) a tailored search to identify whether the above pests are present or not in Ukraine. The searches were run between December 2024 and March 2025. 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 *Acer*, *Acer* sp., *Acer* spp., *A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala* and *A.*×*freemanii*. As for Web of Science, the literature search was performed using a specific, ad hoc established search string (see Appendix B). The string was run in 'All Databases' with no range limits for time or language filters. This is further explained in Section 2.3.2.

TABLE 3 Databases used by EFSA for the compilation of the pest list associated with *Acer*, *Acer* sp., *Acer* spp., *A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala* and *A.*×*freemanii*.

Database	Platform/link
Aphids on World Plants	https://www.aphidsonworldsplants.info/C_HOSTS_AAIntro.htm
BIOTA of New Zealand	https://biotanz.landcareresearch.co.nz/
CABI Crop Protection Compendium	https://www.cabi.org/cpc/
Database of Insects and their Food Plants	https://www.brc.ac.uk/dbif/hosts.aspx
Database of the World's Lepidopteran Hostplants	https://www.nhm.ac.uk/our-science/data/hostplants/search/index.dsml
EPPO Global Database	https://gd.eppo.int/
EUROPHYT	https://food.ec.europa.eu/plants/plant-health-and-biosecurity/europhyt_en
Leaf-miners	https://www.leafmines.co.uk/html/plants.htm
Nemaplex	https://nemaplex.ucdavis.edu/Nemabase2010/PlantNematodeHostStatusDDQuery.aspx
Plant Parasites of Europe	https://bladmineerders.nl/
Plant Pest Information Network	https://www.mpi.govt.nz/news-and-resources/resources/registers-and-lists/plant-pest-information-network/
Scalenet	https://scalenet.info/associates/
Scolytinae hosts and distribution database	https://www.scolytinaehostsdatabase.eu/site/it/home/
Spider Mites Web	https://www1.montpellier.inra.fr/CBGP/spmweb/
USDA ARS Fungal Database	https://fungi.ars.usda.gov/
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)	Web of Science https://www.webofknowledge.com
World Agroforestry	https://www.worldagroforestry.org/treedb2/speciesprofile.php?Spid=1749

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 considered.

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-quarantine pests and other pests) that may require risk mitigation measures are identified. The EU non-quarantine 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 implemented risk mitigation measures for each relevant pest were evaluated.

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 units out of 10,000 exported units. Further details on the methodology used to estimate the likelihood of pest freedom are provided in Section 2.3.4.

2.3.1 | Commodity data

Based on the information provided by the SSUFSCP of Ukraine the characteristics of the commodity were summarised.

2.3.2 | Identification of pests potentially associated with the commodity

To evaluate the pest risk associated with the importation of the commodity from Ukraine a pest list was compiled. The pest list is a compilation of all identified plant pests associated with *Acer*, *Acer* sp., *Acer* spp., *Acer griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala* and *A.×freemanii* based on information provided in the Dossier Sections 1.1 and 1.2 and on searches performed by the Panel.

The scientific names of the host plants (i.e. *Acer*, *Acer* sp., *Acer* spp., *A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala*, *A.×freemanii*) were used when searching in the EPPO Global database and CABI Crop Protection Compendium. The same strategy was applied to the other databases excluding EUROPHYT and Web of Science.

EUROPHYT was investigated by searching for the interceptions associated with *Acer*, *Acer* sp., *Acer* spp., *A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala* and *A.×freemanii* imported from the whole world from 1995 to May 2020 and TRACES- NT from May 2020 to 30 April 2025, respectively. For the pests selected for further evaluation, a search in the EUROPHYT and/or TRACES-NT was performed for the interceptions from the whole world, at genus level, for all the available years until 30 April 2025.

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 names of the commodity. All the pests already retrieved using the other databases were removed from the search terms in order to be able to reduce the number of records to be screened. The established search string is detailed in Appendix B and was run on 17 December 2024 and 20 February 2025.

The titles and abstracts of the scientific papers retrieved were screened and the pests associated with the *A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala*, *A.×freemanii* were included in the pest list. The pest list was eventually further compiled with other relevant information (e.g. EPPO code per pest, taxonomic information, categorisation, distribution) useful for the selection of the pests relevant for the purposes of this Opinion.

The compiled pest list (see Microsoft Excel® in Appendix D) includes all identified pests that use as host *A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala*, *A.×freemanii* or that are reported as associated with *Acer*, *Acer* sp. and *Acer* spp. as well as all EU-quarantine pests and protected zone quarantine pests found to be associated with *Acer* as a genus.

The evaluation of the compiled pest list was done 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).

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

All implemented risk mitigation measures were listed and evaluated. When evaluating the likelihood of pest freedom at origin, the following types of potential infestation/infection sources for *A. griseum*, *A. platanoides*, *A. rubrum*, *A. saccharinum*, *A. saccharum*, *A. tataricum, A. tataricum* subsp. *ginnala*, *A.×freemanii* in the exporting nursery were considered (see also Figure 1):

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

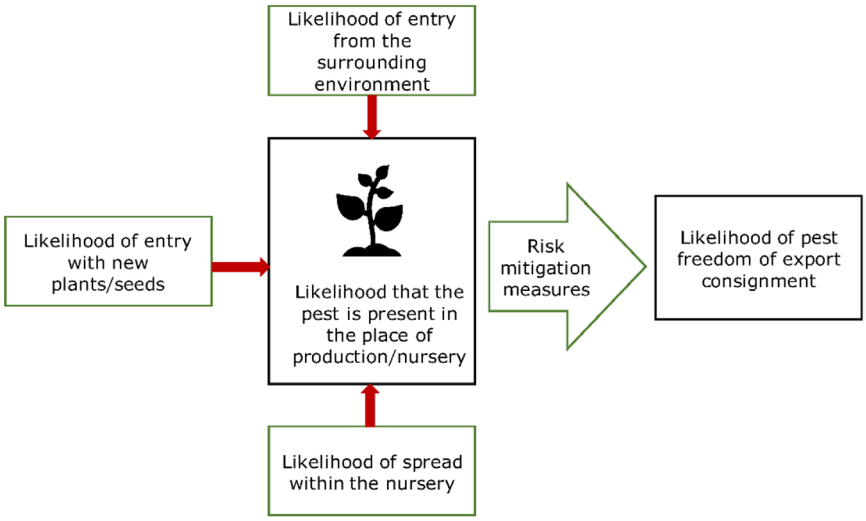

FIGURE 1 Conceptual framework to assess likelihood that plants are exported free from relevant pests (Source: EFSA PLH Panel, 2019).

The risk mitigation measures proposed by SSUFSCP of Ukraine were evaluated with Expert Knowledge Elicitation (EKE) according to the Guidance on uncertainty analysis in scientific assessment (EFSA Scientific Committee, 2018).

Information on the biology, estimates of likelihood of entry of the pest to the export nursery and spread within the nursery and the effect of the measures on a specific pest were 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 commodity an Expert Knowledge Elicitation (EKE) was performed following EFSA guidance (Annex B.8 of EFSA Scientific Committee, 2018). The specific question for EKE was: 'Taking into account (i) the risk mitigation measures in place in the nursery and (ii) other relevant information, how many out of 10,000 plants will be infested with the relevant pest when arriving in the EU?'. The two commodities, bare root plants and single plants in pots are described in section 3.1.

The uncertainties associated with the EKE were taken into account and quantified in a probability distribution fitted to the elicited percentiles, 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 EKE results were reported in terms of the likelihood of pest freedom, calculated by 1 minus the likelihood to be infested. The lower 5% percentile of the uncertainty distribution reflects the opinion that pest freedom is with 95% certainty above this limit.

3 | COMMODITY DATA

3.1 | Description of the commodity

The commodities to be imported are plants of *Acer* spp. and specifically *A. griseum* (EPPO code: AGRGS, common name: paperback maple), *A. platanoides* (EPPO code: ACRPL, common name: plane maple), *A. rubrum* (EPPO code: ACRRB, common name: Canadian maple), *A. saccharum* (EPPO code: ACRSC, common name: hard maple or sugar maple), *A. saccharinum* (EPPO code: ACRSA, common name: silver maple), *A. tataricum* (EPPO code: ACRTA, common name: tatar maple) and *A. tataricum* subsp. *ginnala* (EPPO code: ACRGN, common name: amur maple), *Acer×freemani* (EPPO code: ACRFE, common name: Freeman maple), all from the Sapindacae family.

According to the Dossier Section 1.2, the commodities to be imported from Ukraine to the EU are:

- young bare root plants aged from 1 to 4 years (in a dormant phase, without leaves, maximum 1–4 m tall depending on the age of plants); and
- plants in pots aged from 1 to 2 years (in a dormant phase, without leaves, maximum 2–3 m tall depending on the age). The growing media consists of peat and perlite and meets the requirements of Annex VII, point 1 of Commission Implementing Regulation 2019.

Acer spp. plants are ornamental trees grown for the EU retail market for consumers, which are planned to be imported to the EU from the certified Nursery of Florex Ukraine LLC.

The expected trade volume is ca 50,000 plants per year (Dossier Section 1.1). The commodities are exported from October to March (Dossier Section 1.1).

According to ISPM 36 (FAO, 2019) the commodity can be classified as 'bare root plants' or 'rooted plants in pots'.

3.2 | Description of the production areas

The nursery producing *Acer* spp. trees for export to the EU is 'Florex Ukraine' located in Stepok village of the Kyiv region. As of the date of the submission of the dossier (Dossier Section 1.2), no other nurseries in Ukraine have submitted formal applications to initiate the export of *Acer* spp. to the European Union.

The exporting nursery is situated in an open landscape characterised by steppe vegetation. There are no surrounding forests, other nurseries or large tree populations within a 15 km radius. The nearest forest stands are located 18–20 km away and consist predominantly of *Pinus sylvestris* (Scots pine) and *Betula pendula* (silver birch), growing on sandy soils. The nursery perimeter is secured with a fence and a continuous hedge composed of *Carpinus betulus*. Within a 2 km radius, plants of *Betula* spp., *Malus* spp., *Prunus* spp., *Viburnum* spp. and *Vitis* spp. are present. No wild or cultivated *Acer* spp. have been identified within 2 km radius (Dossier Section 1.2).

The access roads and adjacent zones within the nursery are seeded with a turfgrass mixture consisting of 60% *Festuca arundinacea*, 10% *Festuca rubra commutata* and 30% *Lolium perenne*. Occasional occurrences of *Taraxacum officinale* are noted. Vegetation is regularly mowed throughout the growing season to prevent weed proliferation (Dossier Section 1.2).

There are 11 greenhouses at the nursery where other plant species are also cultivated. Each greenhouse is designed for a specific plant species and production cycle. There is no inter-species mixing and the greenhouses are disinfected between production cycles. The minimum distance between the maple fields and the main greenhouse complex is approximately 700 metres (Dossier Section 1.2).

Based on the global Köppen–Geiger climate zone classification (World Maps of Köppen-Geiger climate classification), the climate of the location of the nursery that intend to export *Acer* spp. to the EU is classified as Dfb. main climate (D): snow, precipitation; precipitation (f): fully humid; temperature (b): warm summer.

3.2.1 | Growing conditions

The nursery producing *Acer* plants for the export to the EU is certified. The plants are intended for outdoor cultivation. The plants are grown in the open field and in containers (i.e. air pots). Newly rooted cuttings are planted directly into air pots (Figure 2) with artificial growing media or are planted directly outdoors in soil (Dossier Section 1.2).

Acer spp. plants for the export and domestic markets are grown together in a nursery. There is no in-nursery separation of production of *Acer* spp. from other crops. There is also simultaneous production of the following crops: *Betula nigra*, *B. pendula*, *B. jacquemontii*, *Quercus rubra*, *Q. palustris*, *Q. coccinea*, *Q. robur*, *Prunus serrulata*, *P. virginiana*, *P. cerasifera*, *Tilia cordata*, *T. americana*, *T. platyphyllos* and *T. tomentosa*.

FIGURE 2 Airpots (left) with a geotextile cover (right) (Source: Dossier Section 1.2).

Other plants present in the nursery are *Betula* spp., *Populus* spp., *Prunus* spp. and *Quercus* spp. (Dossier Section 1.2).

3.2.2 | Source of planting material

Only vegetative propagation through cuttings is used. Cuttings are obtained exclusively from mother plants grown in nurseries. The panel is uncertain on whether mother plants for cuttings production are grown in nurseries which are not producing the commodities for export. The mother plants have been obtained from certified authorised nurseries in the European Union (Dossier Section 1.2). No other information on mother plants have been provided.

3.2.3 | Production cycle

Plants are either grown in containers/pots or in soil in the field. Container-grown plants can be grown in greenhouses or outdoors. Separation from soil is achieved by placing them on a gravel bed which is covered by a geotextile. The minimum distance between greenhouses and production fields of *Acer* is 700 m (Dossier Sections 1.1 and 1.2).

Rooted plants in pots are grown in EU-compliant growing media free of soil for their whole life. The medium is a mixture consisting of one part peat and one part perlite (by volume). In spring, newly rooted cuttings are transplanted directly into air pots with a growing medium consisting of a 50:50 mixture of sifted Baltic peat (particle size 10–30 mm and 20–40 mm, pH 5.5–6.5) and perlite enriched with controlled release fertilisers. Container-grown plants are transplanted every 2 years into progressively larger pots. Air pots and jute liners are used to enhance root structure (Figure 2) (Dossier Section 1.2).

Depending on in-row spacing and developmental stage, bare root plants are lifted and replanted approximately every 3–4 years. Root pruning is integrated into this process (Dossier Section 1.2).

Irrigation water originates from a certified deep borehole and is collected in a surface reservoir. The water is regularly analysed and confirmed to be free from quarantine pests. The water undergoes filtration and is subject to microbiological assessment in accordance with EU water quality recommendations (Dossier Section 1.2).

General sanitary practices are implemented which include weed control by frequent soil cultivation between rows to minimise pest reservoirs; regular mowing of access areas to production fields; using clean tools during propagation by sterilising with alcohol; ensuring mother plant material used for propagation is healthy and have no signs of disease and pest infestation (Dossier Section 1.2).

Plantation of new cuttings are used only in fields which have been left fallow for a season and treated with granular insecticide against insect larvae before planting a new crop. No herbicide is used in the nursery to control weeds or other unwanted vegetation in crops. Only frequent inter-row cultivation is applied (Dossier Section 1.1).

Prior to planting, the production areas were sown with green manure crops such as white mustard (*Sinapis alba*) and winter rye (*Secale cereale*), which are subsequently ploughed under and cultivated three times per season. Suppression of soil-borne pests using natural compounds – specifically mustard-derived glucosinolates, which release isothiocyanate gas is the primary method used to control nematodes (Dossier Section 1.2).

To prevent contamination of the growing medium after planting the plants, the following measures are applied: use of clean tools, clean equipment, clean containers, storage of nutrient media associated with plants in an area free from harmful organisms or in a place of production free from harmful organisms, use of water free from quarantine pests, use of

physical isolation (e.g. protected conditions, prevention of the spread of pests by wind, production on surfaces separated from contact with soil) (Dossier section 1.1).

3.2.4 | Pest monitoring during production

The nursery of *Acer* spp. plants follows compulsory phytosanitary measures like visual field evaluation to identify regulated harmful organisms. The nursery staff conduct systematic surveys of *Acer* spp. storages and, in case of detection of the spread of pests, the central executive body implementing the state policy in the field of plant protection is informed.

Inspection is conducted by the state phytosanitary inspector during vegetation period with the following frequency:

- every half-year – at the place of production or production site;
- annually – at business entities that grow elite seeds and planting material, at state variety research stations, at fruit growers, at quarantine greenhouses of botanical gardens, as well as in areas where quarantine is introduced;
- once in 2 years – at business entities engaged in the production and processing of agricultural products, on the lands of persons where quarantine organisms were not found and on the territories adjacent to them (Dossier Section 1.1).

During the inspection procedure to establish the status of the production site or production site free of regulated pests, the state phytosanitary inspector performs:

- preliminary analysis of documents relating to the place of production or production site;
- setting buffer zone boundaries;
- visual inspection of plants, plant products and other control objects and/or objects located on the territory of the production site or production site;
- selection of plant samples, plant products and other objects of regulation;
- preliminary visual analysis of selected samples on site;
- sending samples for phytosanitary examination to quarantine laboratories (Dossier Section 1.1).

3.2.5 | Pest management during production

The production nursery has to keep records on the pesticides available, and the pesticides and agrochemicals used. The volume of pesticides used is reported to the regulatory authorities. Nurseries are obliged to use pesticides and agrochemicals that comply with Ukrainian state standards, sanitary standards and other documented regulations.

Nursery staff monitors daily the crop for pests and diseases. The staff performs mechanical and hand-weeding around the trees in the production fields.

Plant protection products are used to control insect and fungal pests in the nursery. The products used are listed in the Dossier Section 1.1 (Appendix 4, E1).

3.2.6 | Post-harvest processes and export procedure

Acer spp. plants are examined during loading up on the transporting vehicle, and samples are taken for phytosanitary procedures. A phytosanitary certificate is issued by SSUFSCP of Ukraine based on the results of the examination for a period of 14 days (Dossier Section 1.2).

Both bare root plants and plants in pots are exported in a dormant stage. Leaves are removed manually if they are present. Soil is removed from bare root plants by washing with high pressure water (Dossier Sections 1.1. and 1.2).

All trees are graded for size and quality, bundled into groups of three to five plants (bare root plants only) and marked by label with information concerning botanic name, country of origin, package number and quantity.

Plants are treated with a mixture of hydrogen peroxide and silver nitrate and stored at a temperature of 0–1.5°C before loading (Dossier Section 1.1).

The plants intended for export are processed and packaged within a dedicated production and storage facility. The building is equipped with potable water supply, waste and rainwater drainage systems, and temperature-controlled cold storage. Plant preparation is conducted under protected conditions, ensuring hygiene and biosecurity throughout the export chain. Plants designated for export are held in isolated storage areas. Spatial and operational separation from other species mitigates the risk of cross-contamination (Dossier Section 1.2).

The *Acer* spp. plants are loaded into a refrigerated truck in bulk. The quantity in each truck depends on the size of the plants. To prevent weathering of the roots and mechanical damage, the plants are transported in refrigerated trucks, covered with jute fabrics. Transportation is carried out without disturbing the refrigeration conditions throughout the entire time. The full cycle of harvesting, processing and loading for one truckload of *Acer* spp. plants with bare roots does not exceed 10–14 calendar days (Dossier Sections 1.1 and 1.2).

4 | IDENTIFICATION OF PESTS POTENTIALLY ASSOCIATED WITH THE COMMODITY

The search for potential pests associated with the commodity rendered 2666 species (see Microsoft Excel® 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.

Eighty-five EU-quarantine species that are reported to use *Acer* as a host plant were evaluated (Table 4) for their relevance to this Opinion.

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

a. the pest is present in Ukraine;
b. *Acer* 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 criteria were selected for further evaluation.

Table 4 presents an overview of the evaluation of the 85 EU-quarantine pests that are reported to use *Acer* as a host.

Of these 85 EU-quarantine pests evaluated, five species are present in Ukraine of which three species (*Cryphonectria parasitica*, *Entoleuca mammata* and *Lopholeucaspis japonica*) were selected for further evaluation. The two remaining species were not selected because they are not associated with the specific commodities.

TABLE 4 Overview of the evaluation of the 85 EU-quarantine pest species known to use *Acer* as a host plant for their relevance for this Opinion.

No.	Pest name according to EU legislation[a]	EPPO code	Group	Pest present in Ukraine	*Acer* confirmed as a host (reference)	Pest can be associated with the commodity	Pest relevant for the opinion
1	*Anoplophora chinensis*	ANOLCN	Insects	No	Yes (Sjöman et al., 2014)	Not assessed	No
2	*Anoplophora glabripennis*	ANOLGL	Insects	No	Yes (Sjöman et al., 2014)	Not assessed	No
3	*Arrhenodes minutus*	ARRHMI	Insects	No	Yes (Solomon, 1995)	Not assessed	No
4	*Bemisia tabaci* (non-European populations)[b]	BEMITA	Insects	No	Yes (Li et al., 2011; Yassin & Bendixen, 1982)	Not assessed	No
5	*Bemisia tabaci* (European populations)[b]	BEMITA	Insects	Yes	Yes (Li et al., 2011; Yassin & Bendixen, 1982)	No[c]	No
6	*Candidatus* Phytoplasma fragariae related strains (YN-169, YN-10G)	PHYPFG	Phytoplasmas	No	Yes (De Jonghe et al., 2020)	Not assessed	No
7	*Choristoneura conflictana*	ARCHCO	Insects	No	Yes (EPPO, 2025; Robinson et al., 2025)	Not assessed	No
8	*Choristoneura parallela*	CHONPA	Insects	No	Yes (Heppner & Habeck, 1976)	Not assessed	No
9	*Choristoneura rosaceana*	CHONRO	Insects	No	Yes (EPPO, 2025; Robinson et al., 2025)	Not assessed	No
10	*Cryphonectria parasitica*	ENDOPA	Fungi	Yes	Yes (Anderson & Babcock, 1913; Shear et al., 1917; Spaulding, 1961)	Yes	Yes
11	*Davidsoniella virescens*	CERAVI	Fungi	No	Yes (Kessler, 1972)	Not assessed	No
12	*Diabrotica undecimpunctata undecimpunctata*	DIABUN	Insects	No	Yes (Clark et al., 2004)	Not assessed	No
13	*Entoleuca mammata*	HYPOMA	Fungi	Yes	Yes (Manion & Griffin, 1986)	Yes	Yes
14	*Euwallacea fornicatus sensu lato*	XYLBFO	Insects	No	Yes (Eskalen et al., 2013)	Not assessed	No
15	*Graphocephala versuta*	GRCPVE	Insects	No	Uncertain (Bentz & Townsend, 2005)[d]	Not assessed	No
16	*Homalodisca vitripennis*	HOMLTR	Insects	No	Yes (Hoddle et al., 2003)	Not assessed	No
17	*Longidorus diadecturus*	LONGDI	Nematodes	No	Yes (Ye et al., 2004)	Not assessed	No
18	*Lopholeucaspis japonica*	LOPLJA	Insects	Yes	Yes (Kosztarab, 1962; Suh, 2020)	Yes	Yes
19	*Lycorma delicatula*	LYCMDE	Insects	No	Yes (Barringer & Ciafré, 2020)	Not assessed	No
20	*Meloidogyne chitwoodi*	MELGCH	Nematodes	No	Yes (den Nijs et al., 2004)	Not assessed	No
21	*Meloidogyne fallax*	MELGFA	Nematodes	No	Yes (den Nijs et al., 2004)	Not assessed	No
22	*Neocosmospora ambrosia*	FUSAAM	Fungi	No	Uncertain[e]	Not assessed	No
23	*Neocosmospora euwallaceae*	FUSAEW	Fungi	No	Yes (Eskalen et al., 2013)	Not assessed	No
24	*Nepovirus persicae*	PRMV00	Viruses	No	Yes (Kenknight, 1960)	Not assessed	No
25	*Oemona hirta*	OEMOHI	Insects	No	Yes (Kuschel, 1990)	Not assessed	No
26	*Phymatotrichopsis omnivora*	PHMPOM	Fungi	No	Yes (Anonymous, 1960)	Not assessed	No
27	*Phytophthora ramorum* (non-EU isolates)	PHYTRA	Oomycetes	No	Yes (Brown & Brasier, 2007; King et al., 2015)	Not assessed	No

TABLE 4 (Continued)

No.	Pest name according to EU legislation[a]	EPPO code	Group	Pest present in Ukraine	*Acer* confirmed as a host (reference)	Pest can be associated with the commodity	Pest relevant for the opinion
28	*Popillia japonica*	POPIJA	Insects	No	Yes (Fleming, 1972)	Not assessed	No
29	*Scirtothrips dorsalis*	SCITDO	Insects	No	Yes (Hodges et al., 2005)	Not assessed	No
30	*Trirachys sartus*	AELSSA	Insects	No	Yes (Temreshev, 2023)	Not assessed	No
31	*Xiphinema americanum sensu stricto*	XIPHAA	Nematodes	No	Yes (Xu & Zhao, 2019)	Not assessed	No
32	*Xiphinema rivesi* (non-EU populations)	XIPHRI	Nematodes	No	Yes (Xu & Zhao, 2019)	Not assessed	No
33	*Xylella fastidiosa*	XYLEFA	Bacteria	No	Yes (Desprez-Loustau et al., 2021; EFSA, 2025)	Not assessed	No
34	*Xylella fastidiosa* subsp. *fastidiosa*	XYLEFF	Bacteria	No	Yes (EFSA, 2025)	Not assessed	No
35	*Xylella fastidiosa* subsp. *multiplex*	XYLEFM	Bacteria	No	Yes (EFSA, 2025)	Not assessed	No
Scolytinae spp. (non-European)							
36	*Ambrosiodmus lewisi* as Scolytinae spp. (non-European)	AMBDLE	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
37	*Ambrosiodmus tachygraphus* as Scolytinae spp. (non-European)	AMBDTA	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
38	*Ambrosiophilus atratus* as Scolytinae spp. (non-European)	XYLBAT	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
39	*Anisandrus maiche* as Scolytinae spp. (non-European)	ANIDMA	Insects	Yes	Yes (Wood & Bright, 1992)	No[f]	No
40	*Anisandrus obesus* as Scolytinae spp. (non-European)	ANIDOB	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
41	*Anisandrus sayi* as Scolytinae spp. (non-European)	ANIDSA	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
42	*Cnestus mutilatus* as Scolytinae spp. (non-European)	XYLSMU	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
43	*Corthylus columbianus* as Scolytinae spp. (non-European)	CORHCL	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
44	*Corthylus punctatissimus* as Scolytinae spp. (non-European)	CORHPU	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
45	*Cryptocarenus seriatus* as Scolytinae spp. (non-European)	CRPCSE	Insects	No	Yes (Atkinson, 2025)	Not assessed	No
46	*Cyclorhipidion pelliculosum* as Scolytinae spp. (non-European)	XYLBPL	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
47	*Dryocoetes aceris* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
48	*Dryocoetes padi* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No

(Continues)

TABLE 4 (Continued)

No.	Pest name according to EU legislation[a]	EPPO code	Group	Pest present in Ukraine	*Acer* confirmed as a host (reference)	Pest can be associated with the commodity	Pest relevant for the opinion
49	*Dryocoetes picipennis* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
50	*Dryocoetes ussuriensis* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
51	*Dryoxylon onoharaense* as Scolytinae spp. (non-European)	DRYXON	Insects	No	Yes (Atkinson, 2025)	Not assessed	No
52	*Euwallacea interjectus* as Scolytinae spp. (non-European)	XYLBIN	Insects	No	Yes (EPPO, 2020)	Not assessed	No
53	*Euwallacea validus* as Scolytinae spp. (non-European)	XYLBVA	Insects	No	Yes (EPPO, 2020; Wood & Bright, 1992)	Not assessed	No
54	*Euwallacea velatus* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
55	*Gnathotrichus retusus* as Scolytinae spp. (non-European)	GNAHRE	Insects	No	Yes (Peterson et al., 1999)	Not assessed	No
56	*Heteroborips seriatus* as Scolytinae spp. (non-European)	XYLBSE	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
57	*Hylocurus rudis* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
58	*Hyorrhynchus lewisi* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
59	*Hypothenemus atomus* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Atkinson, 2025)	Not assessed	No
60	*Hypothenemus birmanus* as Scolytinae spp. (non-European)	HYOTBI	Insects	No	Yes (Atkinson, 2025)	Not assessed	No
61	*Hypothenemus brunneus* as Scolytinae spp. (non-European)	HYOTBR	Insects	No	Yes (Atkinson, 2025)	Not assessed	No
62	*Hypothenemus californicus* as Scolytinae spp. (non-European)	HYOTCA	Insects	No	Yes (DiGirolomo et al., 2022)	Not assessed	No
63	*Hypothenemus dissimilis* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
64	*Hypothenemus interstitialis* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
65	*Hypothenemus javanus* as Scolytinae spp. (non-European)	HYOTJA	Insects	No	Yes (Atkinson, 2025)	Not assessed	No
66	*Hypothenemus piaparolinae* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Johnson et al., 2016)	Not assessed	No

TABLE 4 (Continued)

No.	Pest name according to EU legislation[a]	EPPO code	Group	Pest present in Ukraine	*Acer* confirmed as a host (reference)	Pest can be associated with the commodity	Pest relevant for the opinion
67	*Indocryphalus aceris* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
68	*Lymantor decipiens* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
69	*Micracisella nanula* Scolytinae spp. (non-European)		Insects	No	Yes (DAFNAE, 2025)	Not assessed	No
70	*Monarthrum fasciatum* as Scolytinae spp. (non-European)	MNTHFA	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
71	*Monarthrum mali* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
72	*Neopteleobius scutulatus* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
73	*Pityophthorus lautus* as Scolytinae spp. (non-European)	PITOLA	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
74	*Procryphalus utahensis* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
75	*Scolytus tadzhikistanicus* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
76	*Stenoscelis hylastoides* Scolytinae spp. (non-European)	STEWHY	Insects	No	Yes (Plant Pest Information Network, 2025)	Not assessed	No
77	*Taphrorychus lenkoranus* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
78	*Taphrorychus mikuniyamensis* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
79	*Thysanoes fimbricornis* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
80	*Xyleborus aquilus* as Scolytinae spp. (non-European)	XYLBAQ	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
81	*Xyleborus ferrugineus* as Scolytinae spp. (non-European)	XYLBFE	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
82	*Xyleborus praevius* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
83	*Xylosandrus amputatus* as Scolytinae spp. (non-European)	XYLSAM	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No
84	*Xylosandrus curtulus* as Scolytinae spp. (non-European)	–	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No

(Continues)

TABLE 4 (Continued)

No.	Pest name according to EU legislation[a]	EPPO code	Group	Pest present in Ukraine	*Acer* confirmed as a host (reference)	Pest can be associated with the commodity	Pest relevant for the opinion
85	*Xyloterinus politus* as Scolytinae spp. (non-European)	XYORPO	Insects	No	Yes (Wood & Bright, 1992)	Not assessed	No

[a]Commission Implementing Regulation (EU) 2019/2072.

[b]*Bemisia tabaci* (European populations) is regulated as a protected zone quarantine pest. Therefore *B. tabaci* is listed twice, as European and non-European population. The association with *Acer* was assessed at the pest species level and not at the population level.

[c]*Bemisia tabaci* is not associated with the commodity, because the leaves are not present when the commodity is exported. The applicant explained that any remaining leaves are removed manually.

[d]There is an uncertainty about *Acer* plants being a host to *Graphocephala versuta*, because it was only reported as captured in traps close to *Acer* trees (Bentz & Townsend, 2005).

[e]There is an uncertainty about *Acer* plants being a host to *Neocosmospora ambrosia*, because there is no evidence in the literature, but the fungus is closely associated with *Euwallacea fornicatus sensu lato*, which has *Acer* as a host.

[f]*Anisandrus maiche* is not associated with the commodity, because it is typically travelling with dead wood and it is known to be associated with lower parts of large trees.

4.2 | Selection of other relevant pests (non-quarantine in the EU) associated with the commodity

The information provided by Ukraine, integrated with the search EFSA performed, was evaluated to assess whether there are other potentially relevant pests of the commodity species present in the country of export. For these potential pests that are non-quarantine in the EU, pest risk assessment information on the probability of entry, establishment, spread and impact is usually lacking. Therefore, these pests were also evaluated to determine their relevance for this Opinion based on evidence that:

a. the pest is present in Ukraine;
b. the pest is (i) absent or (ii) has a limited distribution in the EU;
c. commodity plant species is a host of the pest;
d. one or more life stages of the pest can be associated with the specified commodities;
e. the pest may have an impact in the EU.

For non-EU quarantine species with a limited distribution (i.e. present in one or a few EU MSs) and fulfilling the other criteria (i.e. c, d and e), either one of the following conditions should be additionally fulfilled for the pest to be further evaluated:

- official phytosanitary measures have been adopted in at least one EU MS;
- any other reason justified by the working group (e.g. recent evidence of presence).

Pests that fulfilled the above listed criteria were selected for further evaluation. Based on the information collected, 2581 potential pests known to be associated with the species commodity were evaluated for their relevance to this Opinion. Pests were excluded from further evaluation when at least one of the conditions listed above (a–e) was not met. Details can be found in Appendix D (Microsoft Excel® file). None of the pests not quarantine in the EU was selected for further evaluation because none of them met all selection criteria.

4.3 | Overview of interceptions

Data on the interception of harmful organisms on plants of *Acer* can provide information on some of the organisms that can be present on *Acer* despite the current measures taken. According to EUROPHYT (2025) (accessed on 5 May 2025) and TRACES- NT (2025) (accessed on 5 May 2025), there were no interceptions of harmful organisms associated with plants for planting of *Acer* from Ukraine destined to the EU MSs from 1995 to 30 April 2025.

4.4 | List of potential pests not further assessed

From the list of pests not selected for further evaluation, the Panel highlighted two species (*Paralongidorus rex* and *Takahashia japonica*) for which the currently available evidence provides no reason to select them for further evaluation in this Opinion. A specific justification ofinclusion in the list of potential pests not further assessed is provided for each species in Appendix C.

4.5 | Summary of pests selected for further evaluation

The three pests satisfying all the relevant criteria listed above in the Sections 4.1 and 4.2 are included in Table 5. The effectiveness of the risk mitigation measures applied to the commodity was evaluated for these selected pests.

TABLE 5 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	*Cryphonectria parasitica*	ENDOPA	*Cryphonectria parasitica* (Murrill) Barr.	Diaporthales Cryphonectriaceae	Fungi	Protected Zone Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072
2	*Entoleuca mammata*	HYPOMA	*Entoleuca mammata* (Wahlenb.) Rogers and Ju	Xylariales Xylariaceae	Fungi	Protected Zone Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072
3	*Lopholeucaspis japonica*	LOPLJA	*Lopholeucaspis japonica* Cockerell	Hemiptera Diaspididae	Insects	EU-Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072

5 | RISK MITIGATION MEASURES

For the selected pests (Table 5), the Panel evaluated the likelihood that they could be present in the nursery by evaluating the possibility that the commodity in the export nursery is infested either by:

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

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

5.1 | Risk mitigation measures applied in Ukraine

With the information provided by Ukraine (Dossier Sections 1.1 and 1.2), the Panel summarised the risk mitigation measures (see Table 6) that are implemented in the production nursery.

TABLE 6 Overview of implemented risk mitigation measures for *Acer* plants designated for export to the EU from Ukraine.

Number	Risk mitigation measure	Implementation in Ukraine
1	Registration of production sites	The production site is registered and confirmed to be free from quarantine pests (Dossier Sections 1.1 and 1.2).
2	Certified plant material	The cuttings are obtained from mother plants which originate from certified authorised nurseries from the EU. Mother plants undergo routine phytosanitary control and preventive treatment. Phytosanitary control measures comply with national and EU standards (Dossier Section 1.2).
3	Growing media	The plants are either cultivated in soil in the field or in containers/pots. The cultivation medium for rooted cuttings in pots is based on peat and perlite and is free of soil and organic matter, which meets the requirements for nutrient media as set out in Annex VII, point 1 of Commission Implementing Regulation 2019/2072. Bare root plants are cleaned from soil with high pressure water (Dossier Section 1.1).
4	Surveillance, monitoring and sampling	State phytosanitary inspectors conduct systematic surveys once per year at the production sites. Visual inspections are complemented by analysis of plant samples. Samples are sent for phytosanitary examination to quarantine laboratories. Further details are provided in points 5.1 and 5.2 of the Dossier Section 1.1. and in the answers to questions 18 and 30 in the Dossier Section 1.2. Surveillance is performed by nursery staff twice per week during the vegetation period and once weekly during dormancy, ensuring that early signs of infestation or infection are promptly detected (Dossier Section 1.1).
5	Hygiene measures	General sanitary practices are implemented to ensure phytosanitary management of the crop which include weed control by frequent soil cultivation between rows to minimise pest reservoirs; regular mowing of access areas to production fields; using clean tools during propagation by sterilising with alcohol; mother plant material used for propagation is healthy and have no signs of disease. Plantation of new cuttings are used only in fields which have been left fallow for a season and treated for soil-borne pests before planting a new crop with granular insecticide against insect larvae. No herbicide in nursery is used to control weeds or other unwanted vegetation in crops, only frequent inter-row cultivation. Prior to planting, the production areas are sown with green manure crops such as white mustard (*Sinapis alba*) and winter rye (*Secale cereale*), which are subsequently ploughed under and cultivated three times per season as the primary method to control nematodes To prevent contamination of the nutrient medium after planting the plants: – use of clean tools, clean equipment, clean containers, etc.; – storage of a nutrient medium associated with plants in an area free from harmful organisms or in a place of production free from harmful organisms; – use of water free from quarantine pests; – use of physical isolation (e.g. protected conditions, prevention of the spread of pests by wind, production on tables separated from contact with soil) (Dossier Section 1.1).
6	Removal of infested plant material	No specific information was provided in the Dossier Sections 1.1 and 1.2.
7	Irrigation water	Irrigation water originates from a certified deep borehole. The water is transferred into artificial above ground reservoirs. The water undergoes multistage filtration. The water is regularly analysed and has been confirmed free from quarantine pests. It is subject to microbiological assessment in accordance with EU water quality recommendations (Dossier Section 1.2).

TABLE 6 (Continued)

Number	Risk mitigation measure	Implementation in Ukraine
8	Application of pest control products	A complex of preventive and extermination measures to combat pests, diseases and weeds is carried out in a timely manner. Regulations for storage, transportation and use of plant protection products are implemented (Dossier Section 1.1). Plant protection products containing the following active substances are applied: fosetyl-aluminium, copper sulphate, dithianon, Streptomyces kasugaenensis, copper oxychloride, fluopyram+trifloxystrobin, penconazole, thiamethoxam, pirimphos-methyl, abamectin, spirotetramat, acetamiprid, imidacloprid. Details on the plant protection products applied are included in the Dossier Section 1.1. (Appendix E1).
9	Measures against soil pests	Prior to planting, the production areas are sown with green manure crops such as white mustard (*Sinapis alba*) and winter rye (*Secale cereale*), which are subsequently ploughed under and cultivated three times per season. Suppression of soil-borne pests using natural compounds – specifically mustard-derived glucosinolates, which release isothiocyanate gas – is the primary method used to control nematodes (Dossier Section 1.2). The container/pot grown plants are separated from soil by gravel beds with geotextile coverings. (Dossier Section 1.2).
10	Inspections and management of plants before export	Export plants of *Acer* sp. are examined during loading up on of the vehicle, samples are taken for phytosanitary procedures. A phytosanitary certificate is issued based on the results of the examination for a period of 14 days. (Dossier Section 1.1). A detailed description of the export inspection is provided in the answer to questions 22, 23 and 24 in the Dossier Section 1.2. *Acer* spp. intended for export are processed and packaged within a dedicated production-storage facility. All trees are graded for size and quality and three to five plants are bundled. The trees are dormant. Remaining leaves are removed manually (Dossier Section 1.1). Fungicides and bactericides are applied pre-storage. Prior to dispatch, root systems are disinfected using Maxim® (fludioxonil 2.5%, applied at 2 mL/L water) and Magnicur Energy® (propamocarb hydrochloride 530 g/L + fosetyl-Al 310 g/L, applied at 4 mL/L water). These treatments are conducted under supervision and according to manufacturers' instructions and EU plant protection regulations. The plants are stored at a temperature of 0–1.5° C before loading. (Dossier Section 1.2).
11	Separation during transport to the destination	*Acer* plants intended for export are held in isolated storage areas to mitigate the risk of cross-contamination (Dossier Section 1.1). The *Acer* sp. plants are loaded into the refrigerator truck in bulk. The quantity in a truck depends on the size of the plants. To prevent weathering of the roots and causing mechanical damage, the plants are transported in refrigerating chambers, covered with jute fabrics. (Dossier Section 1.2).

5.2 | Evaluation of the current measures for the selected relevant pests including uncertainties

For each evaluated pest, the relevant risk mitigation measures acting on the pest were identified. Any limiting factors on the effectiveness of the measures were documented.

Therefore, the Panel assumes that applications are effective in removing the pests to an acceptable level. If there are serious uncertainties or evidence of pest presence despite application of the pesticide (e.g. reports of interception at import) this will be considered in the EKE on the effectiveness of the measures.

All the relevant information including the related uncertainties deriving from the limiting factors used in the evaluation are summarised in a pest data sheet provided in Appendix A. Based on this information, for each selected relevant pest, an expert judgement is given for the likelihood of pest freedom taking into consideration the risk mitigation measures and their combination acting on the pest.

An overview of the evaluation of each relevant pest is given in the sections below (Sections 5.2.1–5.2.3). The outcome of the EKE regarding pest freedom after the evaluation of the implemented risk mitigation measures is summarised in the Section 5.2.4.

5.2.1 | Overview of the evaluation of *Cryphonectria parasitica*

Overview of the evaluation of *Cryphonectria parasitica* for bare root plants (1–4 years old)					
Rating of the likelihood of pest freedom	Pest free with some exceptional cases (based on the Median).				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free plants	9958 out of 10,000 **plants**	9979 out of 10,000 **plants**	9989 out of 10,000 **plants**	9995 out of 10,000 **plants**	9999 out of 10,000 **plants**

(Continues)

(Continued)

Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of infected plants	1 out of 10,000 **plants**	5 out of 10,000 **plants**	11 out of 10,000 **plants**	21 out of 10,000 **plants**	42 out of 10,000 **plants**
Summary of the information used for the evaluation	**Possibility that the pest could become associated with the commodity** *Cryphonectria parasitica* is present in Ukraine, although only reported in the western part of the country. The main host (*Castanea* spp.) grows mainly in this region but can also be found in other parts of Ukraine, while other host plants, e.g. *Quercus* spp. are more abundant in the whole country. Infected host plants can be present either inside or in the surroundings of the nursery. Although the susceptibility of *Acer* spp. to the pathogen is highly uncertain, infections could occur particularly via pruning wounds. Altogether, this suggests that the association with the commodity, although unlikely, is possible. **Measures taken against the pest and their efficacy** General measures taken by the nursery are effective against the pathogen. These measures include (a) the use of certified plant material; (b) inspections, surveillance, monitoring, sampling and laboratory testing; (c) hygiene measures with particular reference to the disinfection of tools and (d) application of pest control products. **Interception records** In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting neither from Ukraine nor from other countries due to the presence of *C. parasitica* between the years 1995 and April 2025 (EUROPHYT, 2025; TRACES-NT, 2025). **Shortcomings of current measures/procedures** The pest is not regulated in Ukraine. In addition, the removal of infected plant material may be effective, although there is no clear evidence that this measure is implemented. **Main uncertainties** – The presence/abundance of the pathogen in the area where the nursery are located. – The level of susceptibility of *Acer* spp. to the pathogen. – Whether early symptoms on *Acer* spp. are recognisable and may be promptly detected. – Whether the removal of infested plant material is carried out. – Whether certification focuses also on other hosts of the pest grown in the nursery. – Effect of fungicide treatments against the pathogen. – The level of accuracy of inspections as plants are examined during loading up on of the vehicle.				

Overview of the evaluation of *Cryphonectria parasitica* for plants in pots (1–2 years old) In the assessment of risk, the age of the plants was considered, reasoning that younger trees are less likely to be infested mainly due to shorter exposure time and smaller size.					
Rating of the likelihood of pest freedom	Pest free with few exceptional cases (based on the Median).				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free plants	9976 out of 10,000 **plants**	9988 out of 10,000 **plants**	9994 out of 10,000 **plants**	9997 out of 10,000 **plants**	9999 out of 10,000 **plants**
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of infected plants	1 out of 10,000 **plants**	3 out of 10,000 **plants**	6 out of 10,000 **plants**	12 out of 10,000 **plants**	24 out of 10,000 **plants**
Summary of the information used for the evaluation	**Possibility that the pest could become associated with the commodity** *Cryphonectria parasitica* is present in Ukraine, although only reported in the western part of the country. The main host (*Castanea* spp.) grows mainly in this region but can also be found in other parts of Ukraine, while other host plants, e.g. *Quercus* spp. are more abundant in the whole country. Infected host plants can be present either inside or in the surroundings of the nursery. Although the susceptibility of *Acer* spp. to the pathogen is highly uncertain, infections could occur particularly via pruning wounds. Altogether, this suggests that the association with the commodity, although unlikely, is possible. **Measures taken against the pest and their efficacy** General measures taken by the nursery are effective against the pathogen. These measures include (a) the use of certified plant material; (b) inspections, surveillance, monitoring, sampling and laboratory testing; (c) hygiene measures with particular reference to the disinfection of tools and (d) application of pest control products. **Interception records** In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting neither from Ukraine nor from other countries due to the presence of *C. parasitica* between the years 1995 and April 2025 (EUROPHYT, 2025; TRACES-NT, 2025). **Shortcomings of current measures/procedures** The pest is not regulated in Ukraine. In addition, the removal of infected plant material may be effective, although there is no clear evidence that this measure is implemented. **Main uncertainties** – The presence/abundance of the pathogen in the area where the nursery are located. – The level of susceptibility of *Acer* spp. to the pathogen. – Whether early symptoms on *Acer* spp. are recognisable and may be promptly detected. – Whether the removal of infested plant material is carried out. – Whether certification focuses also on other hosts of the pest grown in the nursery. – Effect of fungicide treatments against the pathogen.				

For more details, see relevant pest data sheet on *Cryphonectria parasitica* (Section A.1 in Appendix A).

5.2.2 | Overview of the evaluation of *Entoleuca mammata*

Overview of the evaluation of *Entoleuca mammata* for bare root plants (1–4 years old)					
Rating of the likelihood of pest freedom	Pest free with some exceptional cases (based on the Median).				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free plants	9942 out of 10,000 **plants**	9967 out of 10,000 **plants**	9983 out of 10,000 **plants**	9993 out of 10,000 **plants**	9999 out of 10,000 **plants**
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of infected plants	1 out of 10,000 **plants**	7 out of 10,000 **plants**	17 out of 10,000 **plants**	33 out of 10,000 **plants**	58 out of 10,000 **plants**
Summary of the information used for the evaluation	**Possibility that the pest could become associated with the commodity** *Entoleuca mammata* is present in Ukraine. Despite there is uncertainty on the host status of the *Acer* species under assessment, other *Acer* spp. are reported as hosts of the pathogen. Mechanical wounds including pruning wounds are expected to be present and may represent infection courts. The hosts can be present either inside or in the surroundings of the nursery. Altogether, this suggests that the association with the commodity may be possible. **Measures taken against the pest and their efficacy** General measures taken by the nursery are effective against the pathogen. These measures include (a) the use of certified plant material; (b) inspections, surveillance and monitoring; (c) the application of pest control products. **Interception records** In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting neither from Ukraine nor from other countries due to the presence of *E. mammata* between the years 1995 and April 2025 (EUROPHYT, 2025; TRACES-NT, 2025). **Shortcomings of current measures/procedures** The pest is not regulated in Ukraine. In addition, the removal of infected plant material may be effective, although there is no clear evidence that this measure is implemented. **Main uncertainties** – The presence/abundance of the pathogen in the area where the nursery is located. – The level of susceptibility of *Acer* spp. to the pathogen. – Whether symptoms on *Acer* spp. are recognisable and may be promptly detected. – Whether the removal of infested plant material is carried out. – Whether certification focuses also on other hosts of the pest grown in the nursery. – Effect of fungicide treatments against the pathogen. – The level of accuracy of inspections as plants are examined during loading up on of the vehicle.				

Overview of the evaluation of *Entoleuca mammata* for plants in pots (1–2 years old) In the assessment of risk, the age of the plants was considered, reasoning that younger trees are less likely to be infested mainly due to shorter exposure time and smaller size.					
Rating of the likelihood of pest freedom	Pest free with some exceptional cases (based on the Median).				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free plants	9958 out of 10,000 **plants**	9976 out of 10,000 **plants**	9988 out of 10,000 **plants**	9996 out of 10,000 **plants**	9999 out of 10,000 **plants**
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of infected plants	1 out of 10,000 **plants**	4 out of 10,000 **plants**	12 out of 10,000 **plants**	24 out of 10,000 **plants**	42 out of 10,000 **plants**
Summary of the information used for the evaluation	**Possibility that the pest could become associated with the commodity** *Entoleuca mammata* is present in Ukraine. Despite there is uncertainty on the host status of the *Acer* species under assessment, other *Acer* spp. are reported as hosts of the pathogen. Although the plants are young, mechanical wounds including pruning wounds are expected to be present and may represent infection courts. The hosts can be present either inside or in the surroundings of the nursery. Altogether, this suggests that the association with the commodity may be possible. **Measures taken against the pest and their efficacy** General measures taken by the nursery are effective against the pathogen. These measures include (a) the use of certified plant material; (b) inspections, surveillance and monitoring; (c) the application of pest control products. **Interception records** In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting neither from Ukraine nor from other countries due to the presence of *E. mammata* between the years 1995 and April 2025 (EUROPHYT, 2025; TRACES-NT, 2025).				

(Continues)

(Continued)

	Shortcomings of current measures/procedures The pest is not regulated in Ukraine. In addition, the removal of infected plant material may be effective, although there is no clear evidence that this measure is carried out. **Main uncertainties** – The presence/abundance of the pathogen in the area where the nursery is located. – The level of susceptibility of *Acer* spp. to the pathogen. – Whether symptoms on *Acer* spp. are recognisable and may be promptly detected. – Whether the removal of infested plant material is carried out. – Whether certification focuses also on other hosts of the pest grown in the nursery. – Effect of fungicide treatments against the pathogen. – The level of accuracy of inspections as plants are examined during loading up on of the vehicle.

For more details, see relevant pest data sheet on *Entoleuca mammata* (Section A.2 in Appendix A).

5.2.3 | Overview of the evaluation of *Lopholeucaspis japonica*

Overview of the evaluation of *Lopholeucaspis japonica* bare root plants (1–4 years old)					
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	9748 out of 10,000 **plants**	9842 out of 10,000 **plants**	9907 out of 10,000 **plants**	9956 out of 10,000 **plants**	9991 out of 10,000 **plants**
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of infected plants	9 out of 10,000 **plants**	44 out of 10,000 **plants**	93 out of 10,000 **plants**	158 out of 10,000 **plants**	252 out of 10,000 **plants**
Summary of the information used for the evaluation	**Possibility that the pest could become associated with the commodity** *Lopholeucaspis japonica* is present in Ukraine, where it is considered as RNQP. Although it is not widely distributed, it could be introduced by plants from areas where the pest is present into the area of the nursery. Different hosts (*Betula* spp., *Carpinus* spp., *Malus* spp., *Prunus* spp., *Vitis* spp.) are present in the surrounding area of the nursery. From there it could enter the nursery as crawler are able to disperse, specially blown by the wind. Once the pest is in the nursery it could easily colonise the *Acer* plants. At low density, the inspection may not be successful because scales are tiny, hidden on the bark and difficult to see. **Measures taken against the pest and their efficacy** Measures taken against the pests are good but not enough to warrant the pest-free status for the commodity. Firstly, the visual inspections are unlikely to detect all infested plants especially at low pest densities. Secondly, the insecticide applications are unlikely to fully eliminate the pest because most developmental stages are protected by a wax shell. **Interception records** In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting from Ukraine due to the presence of *L. japonica* between the years 1995 and April 2025. However, there are two records of notification of *Acer* sp. bonsai plants from China due to the presence of *L. japonica* in 1999 (EUROPHYT, 2025; TRACES-NT, 2025). **Shortcomings of current measures/procedures** Pesticide treatments are not clearly targeted to the most sensitive stage (crawlers), so that the efficacy is limited as the other stages are protected by thick wax layer. The inspections may not be successful when the insect density is very low. The removal of infested plants would have a clear effect on the prevalence of the pest, however there is uncertainty as to whether the measure is carried out. **Main uncertainties** – The pest pressure around the nursery is not known. – There are host trees as *Betula* spp., *Carpinus* spp., *Malus* spp., *Prunus* spp. or *Vitis* spp. in the surrounding area, although there are no data about the presence of the scales. – Uncertainty about whether infested plants are removed when detected. – It is unknown if other tree species, potential hosts of the pest, grown in the nursery are also certified.				

Overview of the evaluation of *Lopholeucaspis japonica* plants in pots (1–2 years) In the assessment of risk, the age of the plants was considered, reasoning that younger trees are less likely to be infested mainly due to shorter exposure time and smaller size.					
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	9858 out of 10,000 **plants**	9908 out of 10,000 **plants**	9943 out of 10,000 **plants**	9970 out of 10,000 **plants**	9992 out of 10,000 **plants**

(Continued)

Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of infected plants	8 out of 10,000 **plants**	30 out of 10,000 **plants**	57 out of 10,000 **plants**	92 out of 10,000 **plants**	142 out of 10,000 **plants**
Summary of the information used for the evaluation	**Possibility that the pest could become associated with the commodity** *Lopholeucaspis japonica* is present in Ukraine, where it is considered as RNQP. Although it is not widely distributed, it could be introduced by plants from areas where the pest is present into the area of the nursery. Different hosts (*Betula* spp., *Carpinus* spp., *Malus* spp., *Prunus* spp., *Vitis* spp.) are present in the surrounding area of the nursery. From there it could enter the nursery as crawler are able to disperse, specially blown by the wind. Once the pest is in the nursery it could easily colonise the *Acer* plants. At low density, the inspection may not be successful because scales are tiny, hidden on the bark and difficult to see. **Measures taken against the pest and their efficacy** Measures taken against the pests are good but not enough to warrant the pest-free status for the commodity. Firstly, the visual inspections are unlikely to detect all infested plants especially at low pest densities. Secondly, the insecticide applications are unlikely to fully eliminate the pest because most developmental stages are protected by a wax shell. **Interception records** In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting from Ukraine due to the presence of *L. japonica* between the years 1995 and April 2025. However, there are two records of notification of *Acer* sp. bonsai plants from China due to the presence of *L. japonica* in 1999 (EUROPHYT, 2025; TRACES-NT, 2025). **Shortcomings of current measures/procedures** Pesticide treatments are not clearly targeted to the most sensitive stage (crawlers), so that the efficacy is limited as the other stages are protected by thick wax layer. The inspections may not be successful when the insect density is very low. The removal of infested plants would have a clear effect on the prevalence of the pest, however there is uncertainty as to whether the measure is carried out. **Main uncertainties** – The pest pressure around the nursery is not known. – There are host trees as *Betula* spp., *Carpinus* spp., *Malus* spp., *Prunus* spp. or *Vitis* spp. in the surrounding area, although there are no data about the presence of the scales. – Uncertainty about whether infested plants are removed when detected. – It is unknown if other tree species, potential hosts of the pest, grown in the nursery are also certified.				

For more details, see relevant pest data sheet on *Lopholeucaspis japonica* (Section A.3 in Appendix A).

5.2.4 | Outcome of Expert Knowledge Elicitation

Table 7 and Figure 3 show the outcome of the EKE regarding pest freedom after the evaluation of the implemented risk mitigation measures for all the evaluated pests.

Figure 4 provides an explanation of the descending distribution function describing the likelihood of pest freedom after the evaluation of the implemented risk mitigation measures for *Acer* bare root plants designated for export to the EU for *Lopholeucaspis japonica*.

TABLE 7 Assessment of the likelihood of pest freedom following evaluation of current risk mitigation measures against *Cryphonectria parasitica*, *Entoleuca mammata*, *Lopholeucaspis japonica* 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	Fungi	*Cryphonectria parasitica*, bare root plants						LM		U
2	Fungi	*Cryphonectria parasitica*, plants in pots						L	M	U
3	Fungi	*Entoleuca mammata*, bare root plants					L	M		U
4	Fungi	*Entoleuca mammata*, plants in pots						LM		U
5	Insect	*Lopholeucaspis japonica*, bare root plants				L	M		U	
6	Insect	*Lopholeucaspis japonica*, plants in pots				L	M		U	

Panel A

	Pest freedom category	Pest fee plants out of 10,000
	Sometimes pest free	≤ 5000
	More often than not pest free	5000–≤ 9000
	Frequently pest free	9000–≤ 9500
	Very frequently pest free	9500–≤ 9900
	Extremely frequently pest free	9900–≤ 9950
	Pest free with some exceptional cases	9950–≤ 9990
	Pest free with few exceptional cases	9990–≤ 9995
	Almost always pest free	9995–≤ 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

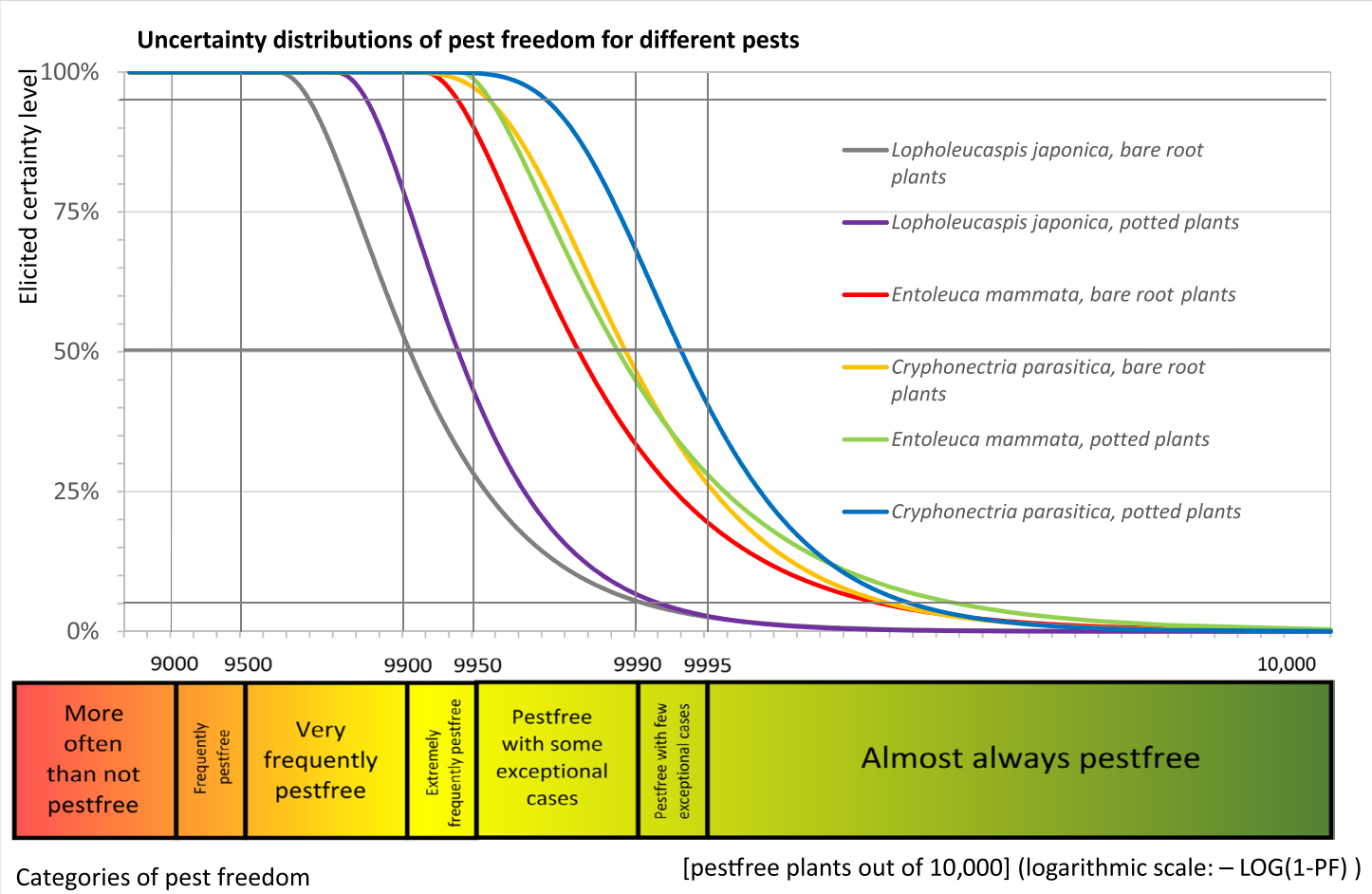

FIGURE 3 Elicited certainty (*y*-axis) of the number of pest-free plants of *Acer* (*x*-axis; log-scaled) out of 10,000 plants designated for export to the EU from Ukraine for all evaluated pests visualised as descending distribution function. Horizontal lines indicate the percentiles (starting from the bottom 5%, 25%, 50%, 75%, 95%).

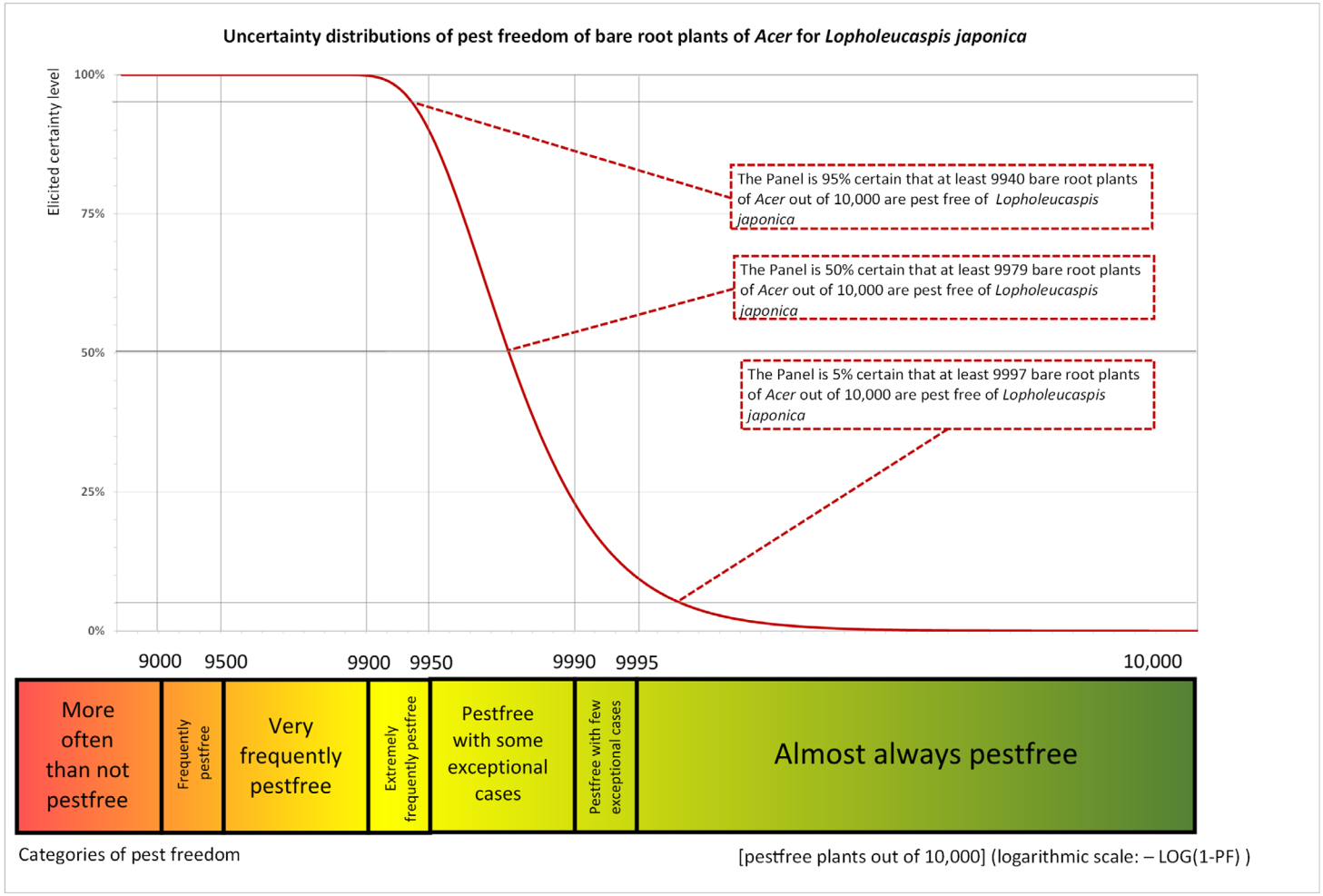

FIGURE 4 Explanation of the descending distribution function describing the likelihood of pest freedom after the evaluation of the implemented risk mitigation measures for plants designated for export to the EU based on the example of *Lopholeucaspis japonica* on *Acer* bare root plants of 1–4 years old.

6 | CONCLUSIONS

Three pests have been identified to be present in Ukraine and considered to be potentially associated with bare root (1–4 years old) and in pots (1–2 years old) *Acer* plants (*A. griseum*, *A. platanoides, A. rubrum*, *A. saccharum, A. saccharinum*, *A. tataricum* and *A. tataricum* subsp. *ginnala, Acer* × *freemani*) imported from Ukraine and relevant for the EU.

These pests are *Cryphonectria parasitica*, *Entoleuca mammata* and *Lopholeucaspis japonica*. The likelihood of pest freedom after the evaluation of the distribution of the pest in Ukraine and the proposed risk mitigation measures for the commodities designated for the export to the EU was estimated.

For *C. parasitica* the likelihood of pest freedom for bare root 1–4 years old *Acer* plants was estimated as 'pest free with some exceptional cases' with the 90% uncertainty range reaching from 'pest free with some exceptional cases' to 'almost always pest free'. The EKE indicated, with 95% certainty that between 9958 and 10,000 bare root plants per 10,000 will be free from *C. parasitica*. The likelihood of pest freedom for *Acer* plants in pots from 1 to 2 years old was estimated as 'pest free with few exceptional cases' with the 90% uncertainty range reaching from 'pest free with some exceptional cases' to 'almost always pest free'. The EKE indicated, with 95% certainty that between 9976 and 10,000 plants in pots from 1 to 2 years old per 10,000 will be free from *C. parasitica*.

For *E. mammata* the likelihood of pest freedom for bare root 1–4 years old *Acer* plants was estimated as 'pest free with some exceptional cases' with the 90% uncertainty range reaching from 'extremely frequently pest free' to 'almost always pest free'. The EKE indicated, with 95% certainty that between 9942 and 10,000 bare root plants per 10,000 will be free from *E. mammata*. The likelihood of pest freedom for *Acer* plants in pots from 1 to 2 years old was estimated as 'pest free with some exceptional cases' with the 90% uncertainty range reaching from 'pest free with some exceptional cases' to 'almost always pest free'. The EKE indicated, with 95% certainty that between 9958 and 10,000 plants in pots from 1 to 2 years old per 10,000 will be free from *E. mammata*.

For *L. japonica* the likelihood of pest freedom for bare root 1–4 years old *Acer* plants 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 9748 and 10,000 bare root plants per 10,000 will be free from *L. japonica*. The likelihood of pest freedom for *Acer* plants in pots from 1 to 2 years old 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 9858 and 10,000 plants in pots from 1 to 2 years old per 10,000 will be free from *L. japonica*.

GLOSSARY

Control (of a pest)	Suppression, containment or eradication of a pest population (FAO, 2024a, 2024b).
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, 2024b).
Establishment (of a pest)	Perpetuation, for the foreseeable future, of a pest within an area after entry (FAO, 2024b).
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, 2024b).
Measures	Control (of a pest) is defined in ISPM 5 (FAO, 2024b) as 'Suppression, containment or eradication of a pest population' (FAO, 2024a). 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, 2024b).
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, 2024b).
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, 2024b).
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, 2024b).
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, 2024b).

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
MSs	Member States
NPPO	National Plant Protection Organisation
PLH	Plant Health
PRA	Pest Risk Assessment
RNQPs	Regulated Non-Quarantine Pests
SSUFSCP	The State Service of Ukraine on Food Safety and Consumer Protection

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REQUESTOR

European Commission

QUESTION NUMBER

EFSA-Q-2023-00743

AMENDMENT

Appendix D was updated by adding the species *Diaprepes abbreviatus* and including changes in *Agrilus basurmanovae*, *Incurvaria pectinea* and *Takahashia japonica*.

PANEL MEMBERS

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX A

Data sheets of pests selected for further evaluation

A.1 | *CRYPHONECTRIA PARASITICA*

A.1.1 | Organism information

Taxonomic information	Current valid scientific name: *Cryphonectria parasitica* Synonyms: *Diaporthe parasitica*, *Endothia gyrosa* var. *parasitica*, *Endothia parasitica*, *Valsonectria parasitica* (according to Index Fungorum, 2025) Name used in the EU legislation: *Cryphonectria parasitica* (Murrill) Barr [ENDOPA] Order: Diaporthales Family: Cryphonectriaceae Common name: blight of chestnut, blight of oak, canker of chestnut, chestnut blight, sweet chestnut blight Name used in the Dossier: *Cryphonectria parasitica*
Group	Fungi
EPPO code	ENDOPA
Regulated status	The pathogen is listed in Annex III and in Annex VI of Commission Implementing Regulation (EU) 2019/2072 as *Cryphonectria parasitica* (Murrill) Barr. [ENDOPA]. It is EU protected zone quarantine pests of Ireland, Sweden and the United Kingdom (Northern Ireland) and also RNQP (Regulated non-quarantine pest) for plants for planting other than seeds of *Castanea*. *Cryphonectria parasitica* is a quarantine pest in Israel, Morocco, Norway, Serbia and USA (EPPO, 2025a). *Cryphonectria parasitica* is included in the EPPO A2 and in the A2 list of Jordan, Türkiye and COSAVE (Comite de Sanidad Vegetal del Cono Sur – Argentina, Brazil, Chile, Paraguay, Peru and Uruguay). It is also reported on A1 list of Argentina, Azerbaijan, Chile, Iran, the UK and IAPSC (Inter-African Phytosanitary Council) (EPPO, 2025a).
Pest status in Ukraine	*Cryphonectria parasitica* is present in Ukraine (CABI, 2021; EPPO, 2025b; Gabor & Csép, 2009; Görcsös, et al., 2012; Radócz, 2001; Radócz et al., 2014) and causes big destruction on *Castanea sativa* (Gabor & Csép, 2009). It was first detected in the Sub-Carpathian region of Ukraine in 2001 on *Castanea sativa* (Radócz, 2001). Later on, the pathogen was also detected on *Quercus petraea* in 2011 at a site with heavily infected chestnut trees (Radócz et al., 2014). The vegetative compatibility types of *Cryphonectria parasitica* found in Ukraine are EU-12 and EU-13 (Gabor & Csép, 2009; Radócz, 2001). All records of *C. parasitica* in Ukraine are from the Oblast Transcarpathian in the western part of the country. Chestnut trees are mainly growing in this region and are rarely found elsewhere in Ukraine (Caudullo et al., 2007). According to the Dossier Section 1.2 the pest is present: not under official control.
Pest status in the EU	*Cryphonectria parasitica* is present in the EU. It is present in Croatia, Italy and Portugal. It has restricted distribution in Austria, Belgium, Bulgaria, France, Germany, Greece, Hungary, Romania, Slovakia, Slovenia and Spain. The pathogen is present with few occurrences in Czechia and the Netherlands. In Poland, the pathogen was eradicated (EPPO, 2025b). Different areas in the EU have different strains of *C. parasitica*, the ability of new strains to spread in areas already infested by other strains seems to be very limited (EFSA PLH Panel, 2016).
Host status on *Acer*	*Cryphonectria parasitica* may infect *Acer palmatum* (Farr & Rossman, 2025; Spaulding, 1961) and *Acer rubrum* (Anderson & Babcock, 1913; Shear, Stevens, & Tiller, 1917). There is no information on whether *C. parasitica* can also attack *Acer* × *freemanii, Acer platanoides, Acer tataricum* subsp. *ginnala, Acer griseum, Acer saccharum, Acer saccharinum* and *Acer tataricum*. *Acer* spp. are reported as minor incidental hosts by Rigling and Prospero (2018).
PRA information	Available Pest Risk Assessment: – Technical justification for Australia's requirement for wood packaging material to be bark free (Biosecurity Australia, 2006); – Rapid pest risk analysis for *Cryphonectria parasitica* (Anderson et al., 2013); – Scientific Opinion on the pest categorization of *Cryphonectria parasitica* (Murrill) Barr (EFSA PLH Panel, 2014); – Scientific opinion on the risk assessment and reduction options for *Cryphonectria parasitica* in the EU (EFSA PLH Panel, 2016); – UK Risk Register Details for *Cryphonectria parasitica* (DEFRA, 2022).
Other relevant information for the assessment	
Biology	*Cryphonectria parasitica* is a pathogen in the family Cryphonectriaceae, native to East Asia (Rigling & Prospero, 2018). It is present in Africa (Algeria, Tunisia), Asia (China, India, Iran, Japan, North and South Korea, Taiwan), Europe, North America (Canada, USA) and Oceania (Australia) (EPPO, 2025b). The biology section is based on the studies on chestnut, one of the major hosts. *Cryphonectria parasitica* is a bark pathogen that infects the tissue through wounds or growth cracks in the bark. The pathogen can also infect abandoned galls of the gall wasp *Dryocosmus kuriphilus* (Meyer, Gallien, & Prospero, 2015). Hail wounds have been documented as important infection courts (Lione et al., 2020). The infection is caused by asexual and sexual spores. The infection develops in a lesion and a canker, which eventually kills the plant part distal to the infection. The pathogen can saprophytically colonise recently (1 year) dead stems or branches (Hepting, 1974; Prospero et al., 2006).

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		Then stromata develop. Stromata can contain sexual fruiting bodies (perithecia), asexual ones (pycnidia) or both. Pycnidia produce conidia that are released in tendrils in moist condition and splash dispersed by rain in a few metres range. Conidia can also be dispersed by birds, insects and windborne dust over long distances (Russin, Shain, & Nordin, 1984; Wendt et al., 1983). Once in the ground conidia can survive for a long time (Heald & Studhalter, 1914). Perithecia produce ascospores that can be dispersed by wind over hundreds of metres and are relatively short-lived. Ascospores are discharged from spring to autumn during warm rains (Guérin, Froidefond, & Xu, 2001; Heald & Gardner, 1914). Sexual reproduction can be by both, outcrossing and self-fertilisation (Marra et al., 2004). In northern Italy, it has been reported that *C. parasitica* can release propagules all over the year, though with significant seasonal peaks in the spring and fall. Large propagule loads were significantly correlated with an increasing number of rainy days of the week (days providing 1–10 mm/day of water) (Lione et al., 2022). In newly established populations, asexual reproduction via conidia is often the predominant spreading mechanism (Rigling & Prospero, 2018). The canker growth can be as fast as 1 mm per day when the average daily temperature is 20°C, with a peak at 27°C and slowed down below 20°C (Bazzigher, 1981). The optimal germination temperature of conidia is 25–26°C, the ascospores' one is 21°C (Fulton, 1912). Humidity promotes spore release (Griffin, 1986), but drought stress can increase incidence and mortality of the pathogen (Roane, Griffin, & Elkins, 1986; Waldboth & Oberhuber, 2009). The pathogen's ability to infect a new host is dependent on the age of the wound: on European chestnut *C. parasitica* cannot establish itself in wounds of four or more days (Bazzigher & Schmid, 1962). *Cryphonectria parasitica* can also show an endophytic behaviour, it has been found in symptomless stems 3 months after inoculation (Guérin & Robin, 2003) or developed its symptoms after 16 months of quarantine in Australia (Cunnington & Pascoe, 2003). On chestnut fruits, the fungus is associated with only the nutshell (Jaynes & Depalma, 1984). In newly colonised territories, the population usually consists of one or few genotypes, limiting sexual reproduction and long-range dispersal via ascospores. In most populations in Europe, random mating has been ruled out and, even then, ascospores are not likely to be the primary inoculum (Milgroom & Cortesi, 1999). The main mycovirus acting as biological control agent for *C. parasitica*, reducing its virulence, in Europe is *Cryphonectria* hypovirus 1 (CHV-1), one of the four known species of the genus Hypovirus (Turina & Rostagno, 2007). CHV-1 can spread via hyphal anastomosis from one individual to another or via conidia, but not via ascospores. Fungi-feeding mites can be important for the spread of CHV-1 (Bouneb et al., 2016). *Cryphonectria parasitica*, like many fungi has a vegetative incompatibility (vic) mechanism. This mechanism usually hinders the transmission of mycoviruses including CHV1. Up to date, there are 64 genetically defined vic genotypes (Short et al., 2015). According to EFSA PLH Panel (2016), the main pathways of entry for *C. parasitica* are plants for planting (including seedlings, scions, rootstocks, ornamental plants), wood with bark (including chips, wood for tannin production, hoops for barrels), fruit (nuts), soil and growing media (including isolated chestnut bark), natural spread of airborne inoculum, biological agents able to mechanically transfer the fungus (e.g. birds, mammals, insects, mites, etc.) and machinery (construction, terracing, etc.) and pruning/cutting tools. According to EUROPHYT (2025), *C. parasitica* was intercepted 14 times on wood and bark of *Castanea* sp. or *Castanea sativa*. Once it was intercepted on *Castanea sativa plants* intended for planting: not yet planted. *Cryphonectria parasitica* is singlehandedly responsible for the removal from the forest dominant plane of *Castanea dentata* in North America. Impact of the pathogen is strongly dependent on host availability, host susceptibility and virulence of the *Cryphonectria parasitica* strain. An in-depth analysis of the impact of introduction of new strains of the pathogen in EU countries where *C. parasitica* is already established and in countries where it is absent is available in the EFSA Pest Risk Assessment for *Cryphonectria parasitica* (EFSA PLH Panel, 2016).
Symptoms	**Main type of symptoms**	*Cryphonectria parasitica* only attacks the aboveground tree parts. Symptoms vary depending on the age of the host tree, its species and the virulence of the particular pathogen strain (Heiniger & Rigling, 1994; Prospero & Rigling, 2013). Virulent strains on susceptible trees produce in few months cankers that can kill branches or twigs (Diller, 1965). On susceptible *Castanea* species, one of the first symptoms is branch wilting with wilted leaves hanging on the branches. Cankers typically appear as sunken, reddish-brown bark lesions. Below the cankers, trees can produce epicormic shoots. At the canker border and under the bark, the fungus develops pale brown mycelial fans. On more resistant tree species (Asian chestnut species, oaks), cankers typically have a swollen appearance and are superficial or callused. There is no information on the symptoms caused by *C. parasitica* on *Acer* plants.
	Presence of asymptomatic plants	*Cryphonectria parasitica* can show an endophytic behaviour, imported chestnut plants have developed symptoms after 16 months of quarantine (Cunnington & Pascoe, 2003).
	Confusion with other pests	*Cryphonectria parasitica* symptoms can be confused with other cankers in the first stages, but the presence of mycelial fans and appearance of the fruiting bodies makes the identification clear. However, on host plants other than *Castanea* spp. similar fruiting bodies are formed by other *Cryphonectria* species, e.g. *Cryphonectria carpinicola* on *Carpinus* spp. (Cornejo et al. 2021). Isolated on potato dextrose agar can identify *C. parasitica*, and molecular methods have also been developed for identification (EFSA PLH Panel, 2014; Chandelier, 2022). Some confusion can occur with cancers caused by *Gnomonopsis castaneae* (Lione et al., 2019).

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Host plant range	Main host of *Cryphonectria parasitica* are *Castanea dentata* and *C. sativa* (EPPO, 2025c). Other hosts in the *Castanea* genus are *C. crenata*, *C. henryi*, *C. mollissima*, *C. ozarkensis*, *C. pumila* and *C. seguinii*. Among oaks the known hosts are *Quercus alba*, *Q. coccinea*, *Q. frainetto*, *Q. ilex*, *Q. montana*, *Q. petraea*, *Q. prinus*, *Q. pubescens*, *Q. stellata*, *Q. suber*, *Q. velutina* and *Q. virginiana* (EPPO, 2025c; Farr & Rossman, 2025). *Cryphonectria parasitica* was also reported on *Aesculus hippocastanum*, *Carya ovata*, *Carpinus betulus*, *Eucalyptus camaldulensis*, *E. haemastoma*, *E. microcorys*, *E. punctata*, *E. robusta*, *Rhus typhina* and *Fagus sylvatica* (EPPO, 2025c; Farr & Rossman, 2025). The reports for *Fagus sylvatica* are only taken from artificial inoculation (Dennert et al., 2020). Older host records of *C. parasitica* should be treated with caution, as they may have to be attributed to other *Cryphonectria* species, e.g. *Carpinus betulus* is a main host of *Cryphonectria carpinicola*, which have only recently been described (Cornejo et al. 2021). *Acer* spp. and *Acer palmatum* are known host for *C. parasitica* (EPPO, 2025c; Farr & Rossman, 2025). *Cryphonectria parasitica* has also been reported on *Acer rubrum* in North America (Anderson & Babcock, 1913; Shear, Stevens, & Tiller, 1917). Inoculation experiments indicated that bark of *Acer rubrum* is much less susceptible than the bark of *Quercus* sp. (Baird, 1991).
Reported evidence of impact	*Cryphonectria parasitica* is EU protected zone quarantine pest.
Evidence that the commodity is a pathway	Host plants for planting, excluding seeds, but including dormant plants, have been identified as pathways by EFSA PLH Panel (2014) and have been historically pathways even after quarantine (Cunnington & Pascoe, 2003).
Surveillance information	There is no surveillance for this pest in Ukraine. According to the Dossier Section 1.2 *C. parasitica* is present in Ukraine: not under official control.

A.1.2 | Possibility of pest presence in the nursery

A.1.2.1 | Possibility of entry from the surrounding environment

Cryphonectria parasitica is present in Ukraine, although currently only reported in the western region of the country (CABI, 2021; Dossier Section 1.2; EPPO, 2025b; Gabor & Csép, 2009). This is a considerable distance from the nursery of production (Nursery Florex LLC), which is located in the north of Ukraine, approximately 55 km south of Kyiv city (Dossier Section 1.2). In the future, however, more exporting nurseries could be established in other parts of the country, including the western part where the pathogen is present in the environment. Hosts of the pest, especially *Quercus* spp. are widely distributed in Ukraine.

The pathogen can naturally spread with ascospores dispersed by air currents over hundreds of metres, as well as with conidia transported with rain splash over short distances. However, conidia can also be dispersed by birds, insects and wind over long distances (Russin, Shain, & Nordin, 1984; Wendt et al., 1983).

Cryphonectria parasitica principally infects *Castanea* species, in Europe mostly *C. sativa*, which is not present in the Florex nursery, as well as within a 2 km radius from the nursery. Other suitable hosts like *Quercus* spp. are also not present within 2 km from the nursery (Dossier Sections 1.1 and 1.2).

Uncertainties:

- The presence of the pathogen in the surrounding of the nursery.
- The susceptibility of *Acer* spp. to the pathogen.
- The dispersal range of *C. parasitica* spores carried by animals (e.g. birds, insects and mites).

Considering the available evidence and associated uncertainties, the Panel concludes that the entry of *C. parasitica* into the Florex nursery from the surrounding environment via conidia and ascospores carried by air currents, birds or insects is unlikely. However, if in the future the exporting nursery is established in the western part of Ukraine, where *C. parasitica* is present, the Panel considers it is possible for the pathogen to enter the nursery.

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

The nursery propagates Acer plants exclusively via semi-lignified cuttings from certified EU mother plants (e.g. from the Netherlands), with no external material introduced in the past 3 years due to the geopolitical situation. Seed propagation is not used (Dossier Section 1.2).

In addition to *Acer*, the nursery also produces other plant species (Dossier Section 1.1). Out of them, there are suitable hosts for the pathogen such as *Quercus* spp. However, there is no information on how and where these *Quercus* spp. plants are produced. Therefore, if the plants are first produced in another nursery, the pathogen could possibly travel with them.

The nursery uses only soilless growing medium made of peat and perlite, compliant with EU regulations (Dossier Sections 1.1 and 1.2). Although soil and growing media are considered pathways of minor importance (EFSA, 2016), the conidia of *C. parasitica* can survive in the soil for long time (Heald & Studhalter, 1914) and therefore could potentially enter by this way. However, the growing medium is certified and sterilised by commercial suppliers during production to ensure the elimination of pests and diseases (Dossier Section 1.2).

Uncertainties:

– The susceptibility to the pathogen of plant species other than *Acer* grown in the nursery.
– No information is available on the provenance of plants other than *Acer* used for plant production in the nursery.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pathogen to enter the nursery via host plants of other species (e.g. *Quercus* spp.) used for plant production in the nursery. The entry of the pathogen with seeds and the growing media the Panel considers as not possible.

A.1.2.3 | Possibility of spread within the nursery

Acer plants are cultivated either in outdoor containers (air pots) or in open fields. Initially, all cuttings are rooted under greenhouse conditions. Once rooted, they are either transplanted into containers placed on gravel beds with geotextile coverings, isolated from field soil or planted in open-field conditions (Dossier Sections 1.1 and 1.2). There are mother plants present in the nursery.

If present in the nursery, the pathogen can infect *Acer* spp. and other host plants, such as *Quercus* spp. (Dossier Section 1.1). If sporulating infections occur on these host plants, *C. parasitica* can naturally spread within the nursery by rain/water splash, air currents, transported by insects, mites and birds. Pruning wounds are providing suitable infections courts for spores. Human assisted spread could be mostly via contaminated equipment, but tools used in the nursery are cleaned and disinfected before being used on different plants (Dossier Section 1.1).

Uncertainties:

– The host suitability of *Acer* spp. and *Quercus* spp. to *C. parasitica*.

Taking into consideration the above evidence and uncertainties, the Panel considers that the spread of the pathogen within the nursery is possible by rain/water splash, air currents and transport of insects, mites and birds.

A.1.3 | Information from interceptions

In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting neither from Ukraine nor from other countries due to the presence of *C. parasitica* between the years 1995 and April 2025 (EUROPHYT, 2025; TRACES-NT, 2025).

A.1.4 | Evaluation of the risk mitigation measures

In the table below, all risk mitigation measures currently applied in Ukraine are listed and an indication of their effectiveness on *C. parasitica* is provided. The description of the risk mitigation measures currently applied in Ukraine is provided in the Table 6.

N	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Registration of production sites	Yes	The risk mitigation measure is expected to be effective in reducing the likelihood of presence of the pathogen on the commodity. Uncertainties: – None
2	Certified plant material	Yes	The risk mitigation measure is expected to be effective in reducing the likelihood of presence of the pathogen on the commodity as the cuttings are obtained from mother plants which originate from certified authorised nurseries from the EU and mother plants undergo routine phytosanitary control and preventive treatment. Uncertainties: – Whether plant material of other hosts of the pest present in the nursery (e.g. *Quercus* spp.) is also certified.
3	Growing media	No	Not relevant
4	Surveillance, monitoring and sampling	Yes	This measure could have some effect. Uncertainties: – Whether symptoms caused by the pathogen on *Acer* are recognisable.
5	Hygiene measures	Yes	The cleaning and disinfection of tools with appropriate product can prevent the spread of the pathogen within the nursery. Uncertainties: – Whether disinfection with alcohol is used on pruning tools.

(Continued)

N	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
6	Removal of infested plant material	Yes	The risk mitigation measure could have some effect, if implemented. Uncertainties: – Whether infested plants are detected thereby allowing their removal. – The degree of implementation, i.e. whether infested plant material is properly removed from the nursery.
7	Irrigation water	Yes	Overhead irrigation of plants in pots can increase the likelihood of spread of the pathogen by water splash. Uncertainties: – None
8	Application of pest control products	Yes	Although *C. parasitica* is generally not a target of the pesticide treatments in the nursery, some fungicides could reduce the likelihood of the infection by the pathogen. Uncertainties: – The level of efficacy of fungicides in reducing infection of *C. parasitica*.
9	Measures against soil pests	No	Not relevant
10	Inspections and management of plants before export	Yes	This measure could have some effect. Uncertainties: – Whether symptoms caused by the pathogen on *Acer* are recognisable. – The level of accuracy of inspections as plants are examined during loading up on of the vehicle.
11	Separation during transport to the destination	No	Not relevant

A.1.5 | Overall likelihood of pest freedom for bare root plants (1–4 years old)

A.1.5.1 | Reasoning for a scenario which would lead to a reasonably low number of infected bare root plants (1–4 years old)

The scenario assumes that the pathogen and its major host (*Castanea* spp.) are not present in the nursery and in the surroundings.

A.1.5.2 | Reasoning for a scenario which would lead to a reasonably high number of infected bare root plants (1–4 years old)

The scenario assumes that the pathogen is present in the nursery and in the surroundings as suitable hosts are present. Older plants are exposed to the pathogen for longer period of time. The scenario assumes *Acer* spp. to be hosts for the pathogen and that pruning may enhance the probability of infection. The scenario also assumes that symptoms of the disease are not easily recognisable during inspections. The pathogen is not regulated in Ukraine and not under official control.

A.1.5.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infected bare root plants (1–4 years old) (Median)

The scenario assumes a limited presence of the pathogen in the nursery and the surroundings and that the plants are exposed to the pathogen for a sufficient period of time to cause some infection. *Acer* spp. are considered minor hosts.

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

The limited information on the distribution of the pathogen in Ukraine results in high level of uncertainties for infection rates below the median. Otherwise, the pest pressure from the surroundings and the susceptibility of *Acer* spp. are expected to be low giving less uncertainties for rates above the median.

A.1.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Cryphonectria parasitica* on bare root plants (1–4 years old)

The following Tables show the elicited and fitted values for pest 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 *Cryphonectria parasitica* per 10,000 plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					5		10		22					60
EKE	0.151	0.388	0.796	1.65	2.88	4.55	6.40	10.9	17.0	21.1	26.8	33.6	42.3	50.3	60.1

Note: The EKE results is the BetaGeneral (0.97886, 9.0738, 0, 152) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infected plants the pest freedom was calculated (i.e. = 10,000 – number of infected 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 *Cryphonectria parasitica* 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	9940					9978		9990		9995					10,000
EKE results	9940	9950	9958	9966	9973	9979	9983	9989	9994	9995	9997	9998	9999.2	9999.6	9999.8

Note: The EKE results are the fitted values.

(A)

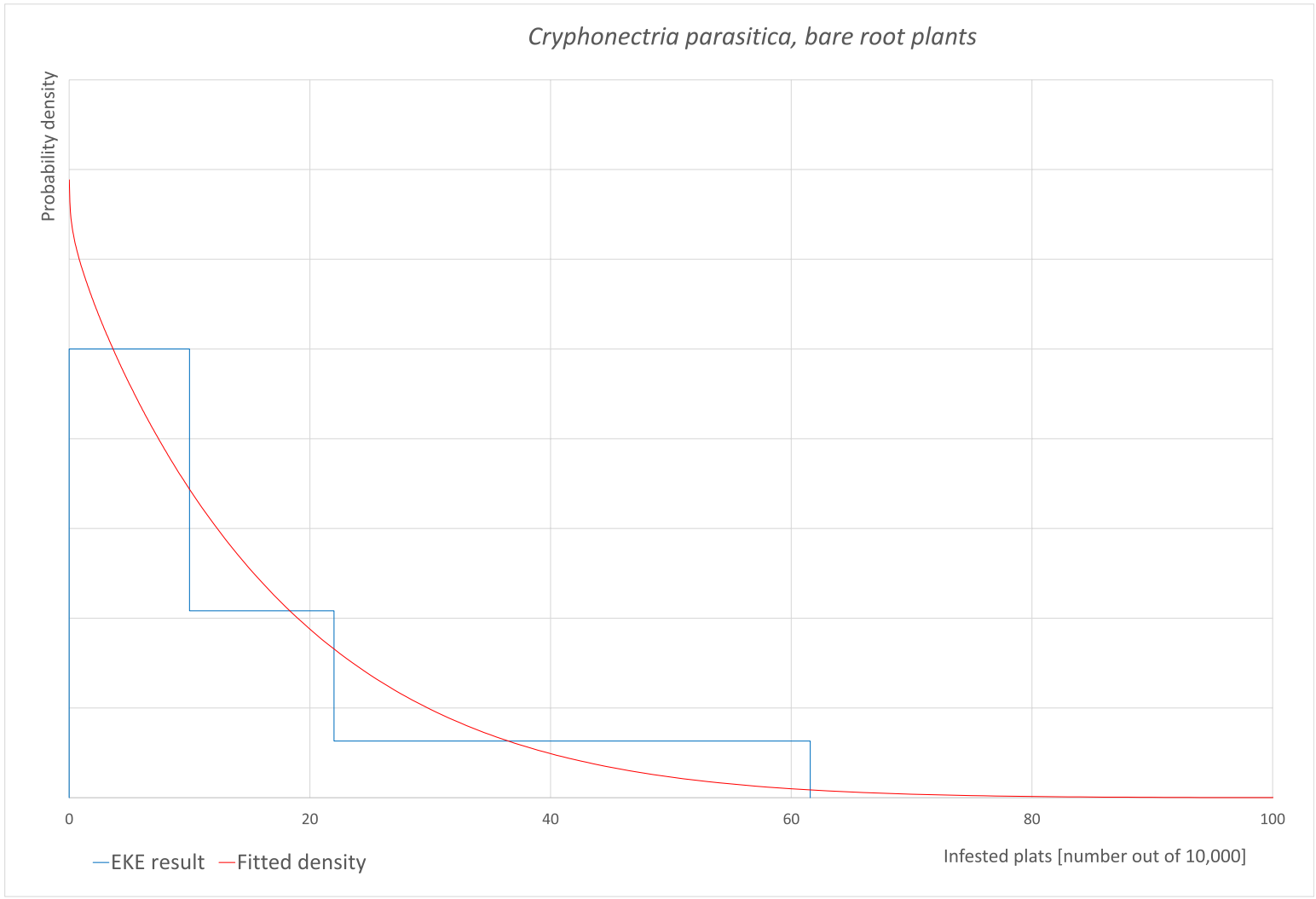

FIGURE A.1 (Continued)

(B)

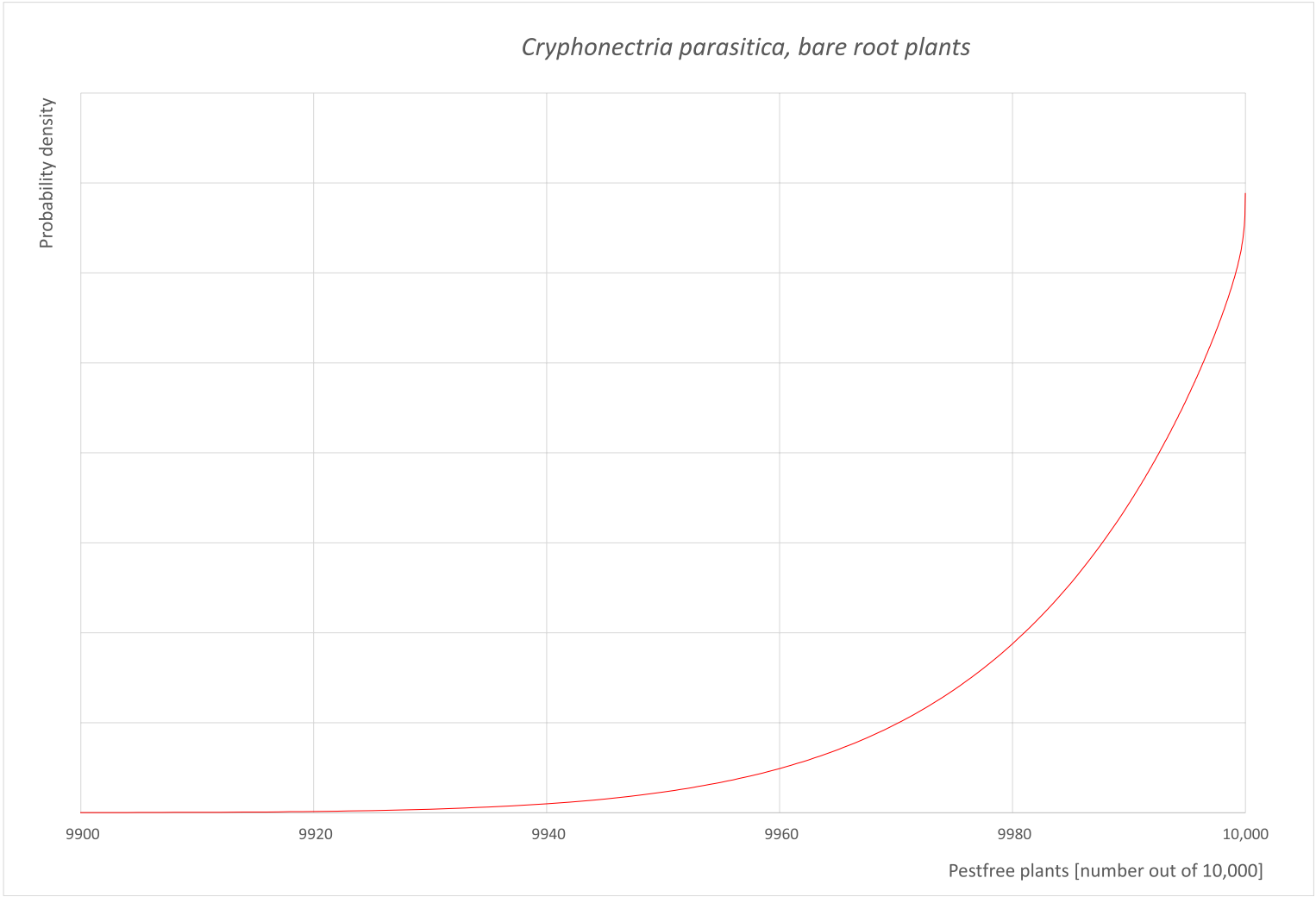

FIGURE A.1 (Continued)

(C)

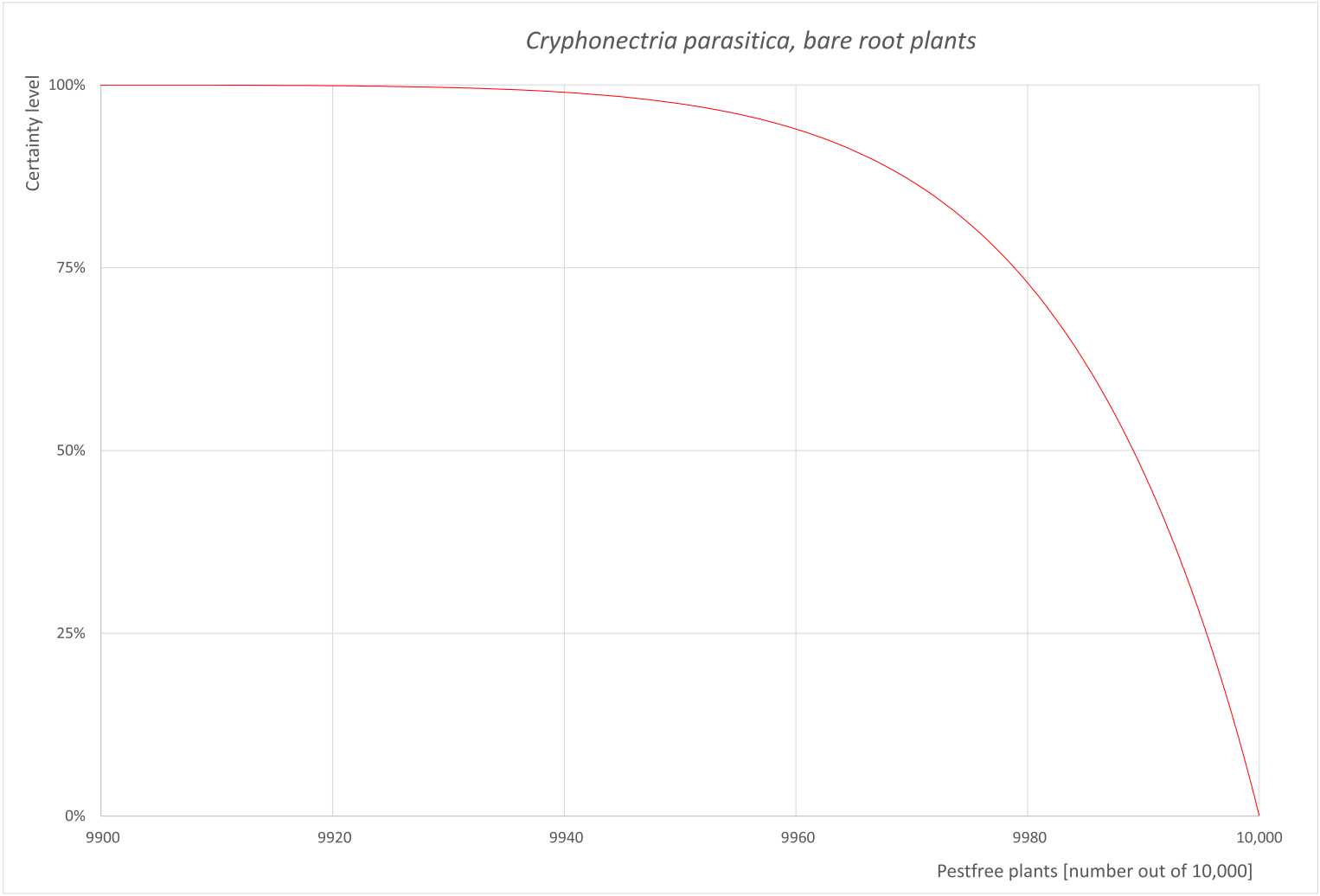

FIGURE A.1 (A) Elicited uncertainty of pest infection per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. =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

A.1.6 | Overall likelihood of pest freedom for plants in pots (1–2 years old)

A.1.6.1 | Reasoning for a scenario which would lead to a reasonably low number of infected plants in pots (1–2 years old)

The scenario assumes that the pathogen and its major host (*Castanea* spp.) are not present in the nursery and in the surroundings.

A.1.6.2 | Reasoning for a scenario which would lead to a reasonably high number of infected plants in pots (1–2 years old)

The scenario assumes that the pathogen is present in the nursery and in the surroundings as suitable hosts are present. The scenario assumes *Acer* spp. to be hosts for the pathogen and that pruning may enhance the probability of infection. The scenario also assumes that symptoms of the disease are not easily recognisable during inspections. The pathogen is not regulated in Ukraine and not under official control.

A.1.6.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infected plants in pots (1–2 years old) (Median)

The scenario assumes a limited presence of the pathogen in the nursery and the surroundings and that the plants are exposed to the pathogen for a sufficient period of time to cause some infection. *Acer* spp. are considered minor hosts.

A.1.6.4 | Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/ interquartile range)

The limited information on the distribution of the pathogen in Ukraine results in high level of uncertainties for infection rates below the median. Otherwise, the pest pressure from the surroundings and the susceptibility of *Acer* spp. are expected to be low giving less uncertainties for rates above the median.

A.1.6.5 | Elicitation outcomes of the assessment of the pest freedom for *Cryphonectria parasitica* on plants in pots (1–2 years old)

The following Tables show the elicited and fitted values for pest 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 *Cryphonectria parasitica* per 10,000 plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					3		6		12					40
EKE	0.161	0.352	0.644	1.20	1.93	2.87	3.88	6.26	9.50	11.7	14.8	18.7	23.9	29.1	35.9

Note: The EKE results is the Beta General (1.1865, 1396.8, 0, 10,000) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infected plants the pest freedom was calculated (i.e. = 10,000 – number of infected 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 *Cryphonectria parasitica* 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	9960					9988		9994		9997					10,000
EKE results	9964	9971	9976	9981	9985	9988	9991	9994	9996	9997	9998.1	9998.8	9999.4	9999.6	9999.8

Note: The EKE results are the fitted values.

(A)

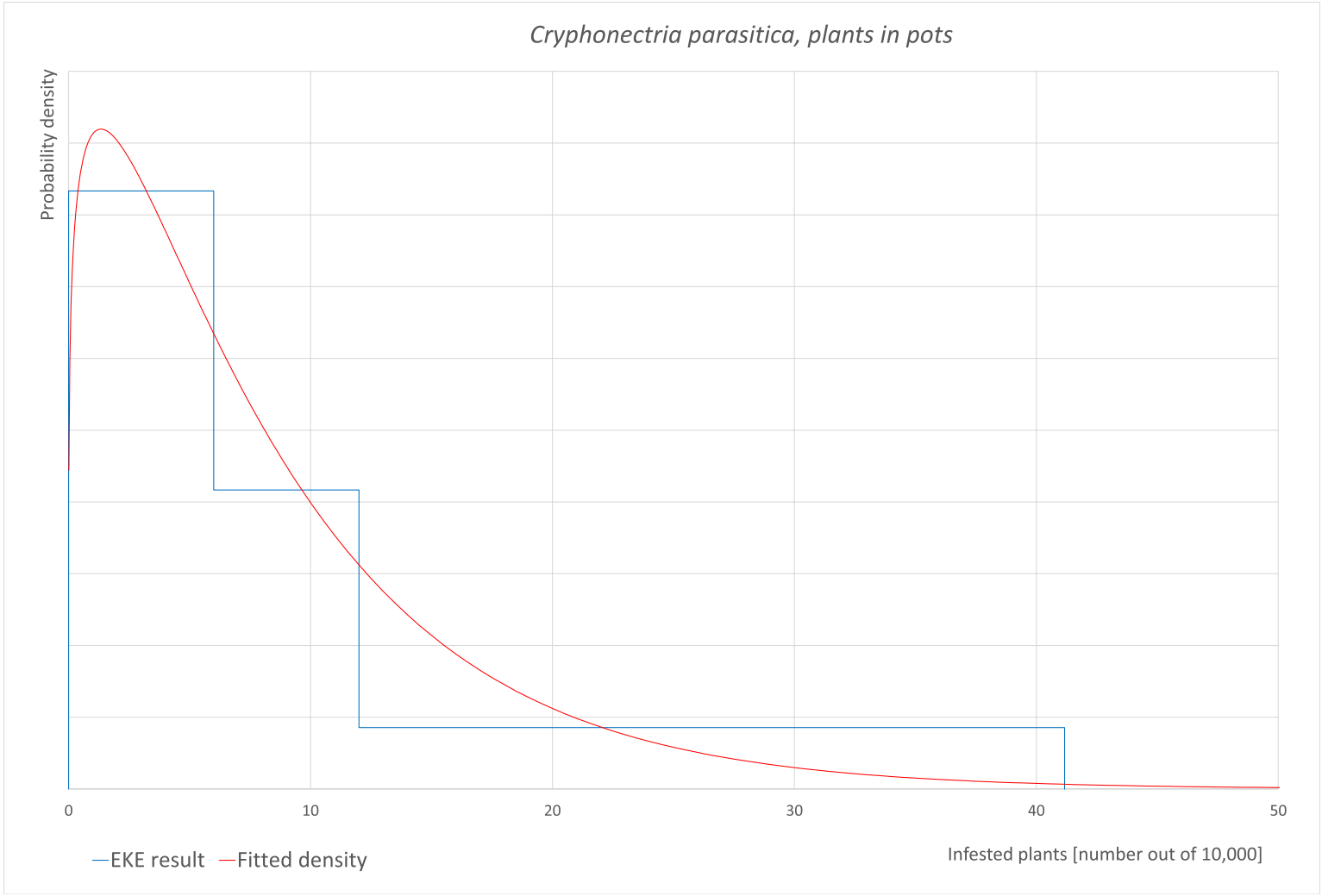

FIGURE A.2 (Continued)

(B)

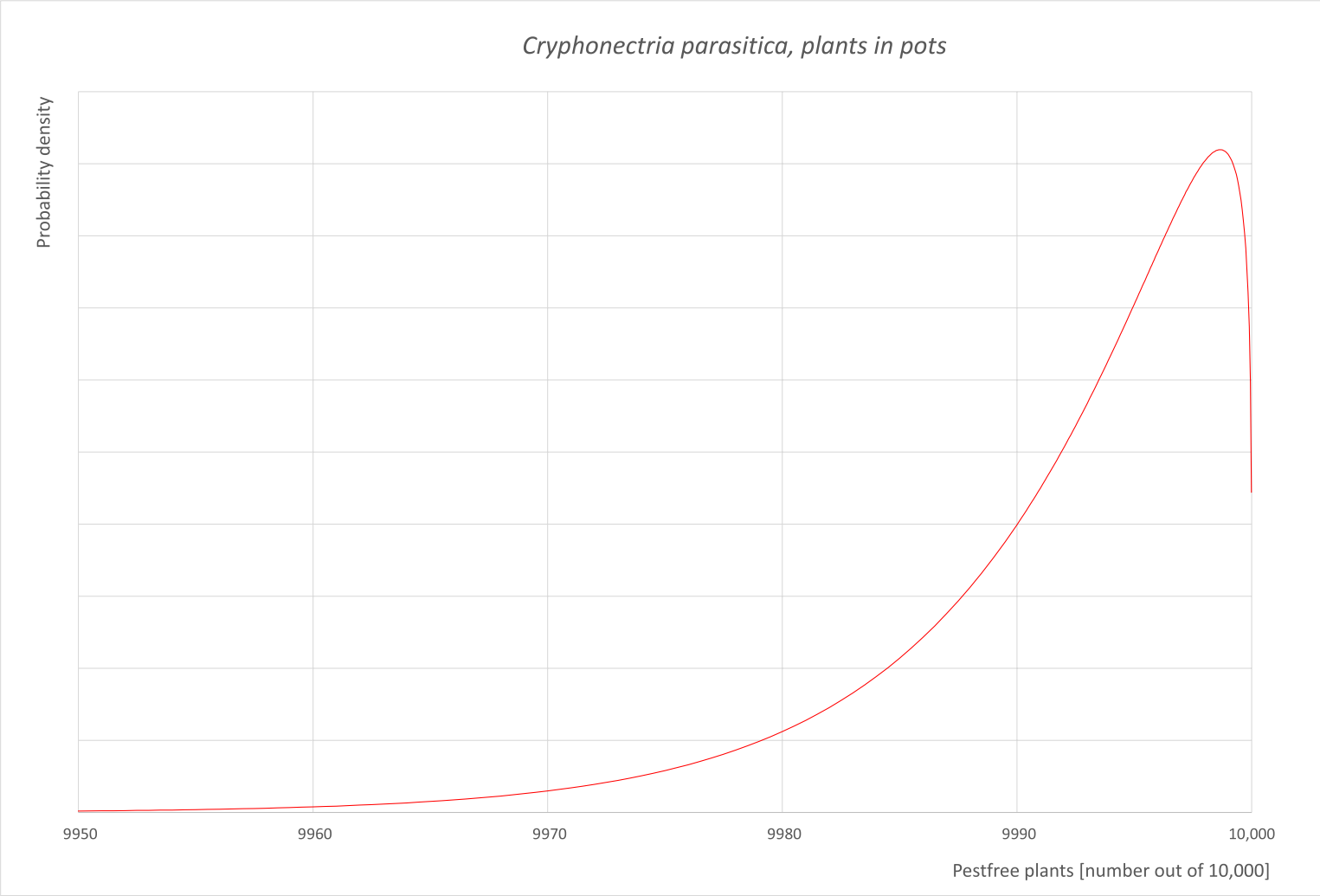

FIGURE A.2 (Continued)

(C)

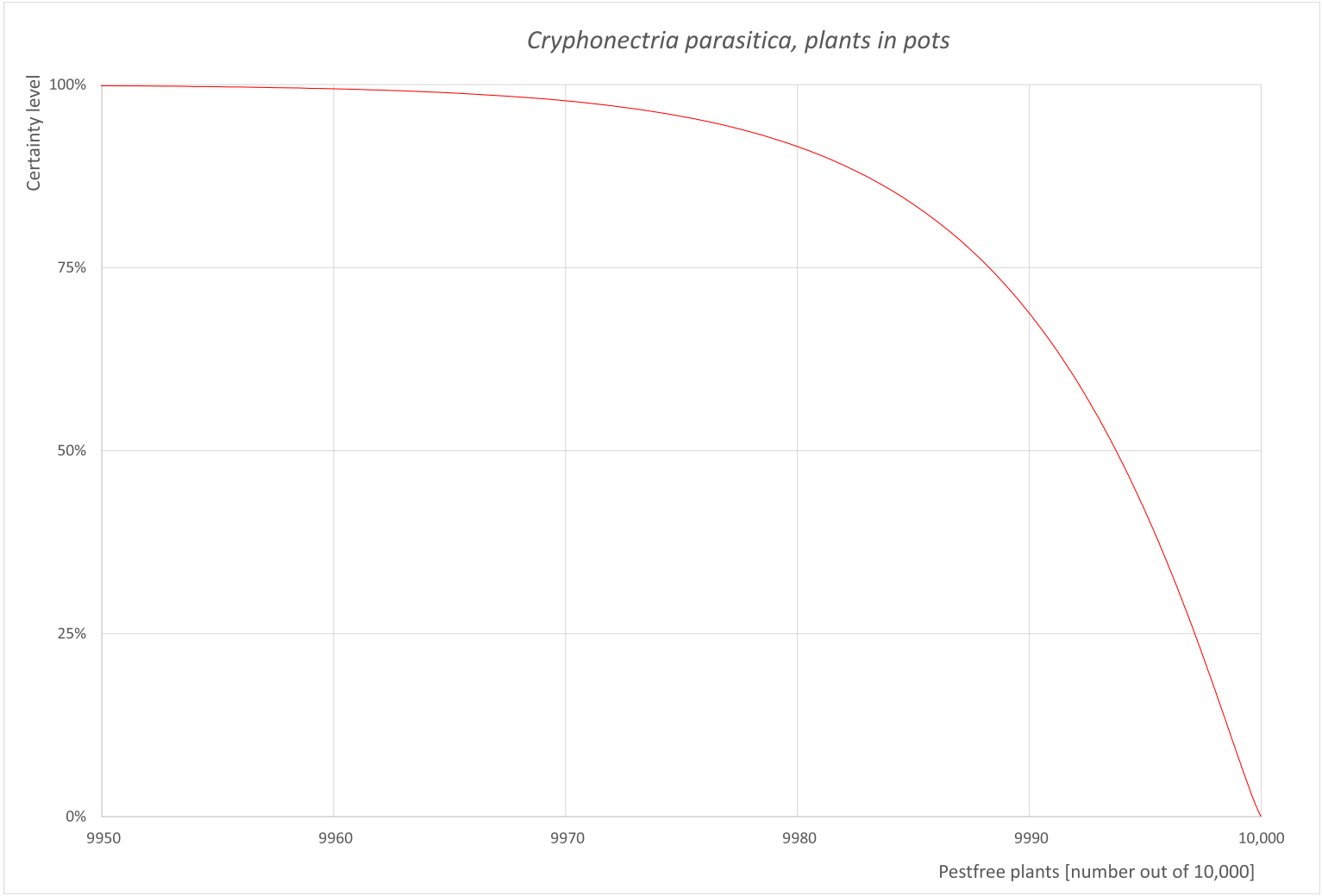

FIGURE A.2 (A) Elicited uncertainty of pest infection per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. =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

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A.2 | *ENTOLEUCA MAMMATA*

A.2.1 | Organism information

Taxonomic information	Current valid scientific name: *Entoleuca mammata* Synonyms: *Anthostoma blakei, Anthostoma morsei, Fuckelia morsei, Hypoxylon blakei, Hypoxylon holwayi, Hypoxylon mammatum, Hypoxylon morsei, Hypoxylon pauperatum, Hypoxylon pruinatum, Nemania mammata, Rosellinia pruinata, Sphaeria mammata, Sphaeria pruinata* (according to Index Fungorum, 2025) Name used in the EU legislation: *Entoleuca mammata* (Wahlenb.) Rogers and Ju Order: Xylariales Family: Xylariaceae Common name: canker of aspen, canker of poplar, hypoxylon canker of poplar Name used in the Dossier: *Entoleuca mammata*
Group	Fungi
EPPO code	HYPOMA
Regulated status	*Entoleuca mammata* is listed in Annex III of Commission Implementing Regulation (EU) 2019/2072 as protected zone quarantine pest for Ireland. The pathogen is quarantine pest in China and Israel. It is on the A1 list of Türkiye (EPPO, 2025a).
Pest status in Ukraine	*Entoleuca mammata* is present in Ukraine (Агафонов & Акулов, 2024; EFSA PLH Panel, 2017; EPPO, 2024; GBIF, 2025). The pathogen was found in Ukraine in March of 2009 on a trunk of *Salix caprea* in vicinity of the village of Chepelin, Zolochiv district, Kharkiv region (Агафонов & Акулов, 2024). According to the Dossier Section 1.2 the pest is present: not under official control.
Pest status in the EU	*Entoleuca mammata* is currently present in the EU in 20 MS: Austria, Belgium, Croatia, Czechia, Finland, France, Germany, Greece, Italy, Lithuania, Netherlands, Slovakia, Slovenia, Sweden (EFSA PLH Panel, 2017); Denmark (GBIF, 2025); Estonia (Lutter et al., 2019) Latvia (Zeps et al., 2016); Poland, Spain (Farr & Rossman, 2025) and Portugal (MyCoPortal, 2025).
Host status on *Acer*	*Entoleuca mammata* was reported on *Acer ginnala, A. rubrum, A. saccharum, A. saccarophorum* and *Acer* sp. (Farr & Rossman, 2025; Manion & Griffin, 1986). There is no information on whether *E. mammata* can also infect *Acer* × *freemanii*, *A. platanoides*, *A. griseum*, *A. saccharinum* and *A. tataricum*.
PRA information	Pest Risk Assessments available: – Scientific Opinion on the pest categorisation of *Entoleuca mammata* (EFSA PLH Panel, 2017); – UK Risk Register Details for *Entoleuca mammata* (DEFRA, 2023); – Express Pest Risk Analysis: *Entoleuca mammata* (Klejdysz et al., 2025).

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Other relevant information for the assessment		
Biology		*Entoleuca mammata* causes canker disease in *Populus tremuloides* and *P. tremula* as primary hosts, but other hardwood species can be also affected as minor hosts (EFSA PLH Panel, 2017). The fungus is also known as primary saprophyte on several *Salix* species (Matthiasen, 1993). *Entoleuca mammata* is thought to be native to North America and introduced into Europe several centuries ago (Kasanen et al., 2004). It is now largely spread in the temperate zones of the northern hemisphere in North America, Europe and Asia. *Entoleuca mammata* is present in Canada and in several states of the USA, mostly in the north. In Asia, it is only found in the Korea Republic on decayed wood (Lee et al., 2000). In Europe, in addition to the mentioned EU MS and Ukraine (see above), it is also reported from Andorra, Bosnia and Herzegovina, Montenegro, North Macedonia, Russia (Southern Russia and Western Siberia), Serbia, Switzerland, the UK (CABI, 2019; EPPO, 2024) and Norway (Granmo, Laessoe, & Schumacher, 1999; NBIC, 2021). The ascospores of *E. mammata* can infect the living wood of the hosts penetrating in the periderm and invading tissues under bark through mechanical wounds and injuries, often caused by woodpeckers and insects (Anderson, Ostry, & Anderson, 1979; Ostry & Anderson, 1983); water stress can increase host susceptibility (EFSA PLH Panel, 2017). The pathogen is most commonly found on trees 15–40 years old, but all ages can be infected (EFSA PLH Panel, 2017; EPPO, 2023). Infection usually starts from branches and twigs and then can spread to the main stem. *Entoleuca mammata* is most frequently found on stems about 1.5–2.5 m above the ground (Mathiasen, 1993). The cankers expand very rapidly (7–8 cm per month) in summer, and more slowly during winter; branches and stems can be girdled causing drying and breakage. *Entoleuca mammata* mostly develops in the range from 8 to 32°C; the optimum temperature is 28°C; toxins host-specific produced by the fungus are involved in pathogenesis (EFSA PLH Panel, 2017; EPPO, 2023; Stermer et al., 1984). The pathogen overwinters in host tissues as both mycelium and spores. Conidia are produced 5–14 months after infection, but their role in the disease transmission is considered not relevant and ascospores are the main source of inoculum (EFSA PLH Panel, 2017; Ostry & Anderson, 2009; Ostry, 2013). *Entoleuca mammata* can spread over long distances via airborne ascospores, which are produced 2–3 years after infection (Anderson, Anderson, & Schipper, 1979); cankers on felled trees on the ground continue to produce ascospores for 23 months (Ostry & Anderson, 2009). Ascospores are dispersed with a temperature above −4°C and wet weather; a minimum of 16°C is required for starting germination, which became rapid at 28–32°C (EFSA PLH Panel, 2017). Infected wood, mostly with bark, may be a pathway for passive spread of *E. mammata* in international trade; however, also young plants may carry ascospores or mycelium of the fungus, which can survive as a latent infection on living material inadvertently moved (EFSA PLH Panel, 2017; EPPO, 2025b). *Entoleuca mammata* is considered an important pathogen of poplars in the USA and Canada, causing economic losses of millions of dollars a year (Anderson, Anderson, & Schipper, 1979; EFSA PLH Panel, 2017; Ostry, 2013). In Europe, damage on *Populus tremula* has been reported in natural stands in France and Italy and in poplar plantations in Sweden and Estonia (EFSA PLH Panel, 2017; Lutter et al., 2019); however, the pathogen is generally known as a pest of low importance (EFSA PLH Panel, 2017).
Symptoms	**Main type of symptoms**	Symptoms of *E. mammata* infection have been described especially for *Populus* species. Early symptoms of cankers on the bark appear as slightly sunken, yellowish-orange areas with an irregular border. Young cankers can be easily identified by removing the bark to expose the white mycelium in the cambial zone. The outer bark in older cankers is then lifted into blister-like patches and breaks away, exposing blackened areas prominently visible on green branches and trunks. Callus formation only occasionally develops because cankers spread very quickly (Anderson, Anderson, & Schipper, 1979; EPPO, 2023). Wilting of leaves may be observed when living trees are girdled by cankers, as well as sprouting of new shoots on stem and branches. Infected trees can be secondarily colonised by other fungi, accelerating the host decline (EPPO, 2023). There is no information on the symptoms caused to *Acer* plants.
	Presence of asymptomatic plants	The disease caused by *E. mammata* has a latent period and symptoms can appear only 2 years after the ascospore infection, therefore asymptomatic plants can be found (Ostry & Anderson, 2009).
	Confusion with other pests	Some *Hypoxylon* species present in Europe on deciduous trees (*H. confluens* and *H. udum*) show symptoms similar to those of *E. mammata* but can be easily distinguished in laboratory by the ascospore characteristics (EFSA PLH Panel, 2017).
Host plant range		According to Ostry and Anderson (2009), several genera of hardwood trees have been reported as hosts of *E. mammata* (Miller, 1961), but conclusive evidence for confirming saprophytic or pathogenic relationships on many of these hosts is largely lacking. The list of hosts of *E. mammata* includes: *Alnus sinuata*, *Betula* sp., *Fagus* sp., *Malus* sp., *Ostrya* sp., *Populus adenopoda*, *P. alba*, *P. balsamifera*, *P. grandidentata*, *P. nigra*, *P. tremula*, *P. tremuloides*, *P. trichocarpa*, *P.* × *wettsteini*, *Populus* hybrids, *Salix caprea*, *S. cinerea*, *S. daphnoides*, *S. myrisinifolia*, *S. pentandra*, *S. phylicifolia*, *S. triandra*, *Salix* sp. and *Sorbus aucuparia* (EPPO, 2025b; Farr & Rossman, 2025; Ostry, 2013). In North America, *E. mammata* mainly infects the quacking aspen (*Populus tremuloides*); minor damage is recorded on *P. alleghaniensis*, *P. balsamifera*, *P. grandidentata* and various *Populus* hybrids. Other secondary hosts in North America are *Acer*, *Alnus*, *Betula*, *Carpinus*, *Fagus*, *Picea*, *Pyrus*, *Salix*, *Sorbus* and *Ulmus* (Manion & Griffin, 1986). In Europe, the main hosts are poplars, mostly *Populus tremula*; other hosts are *P. alba*, *P. nigra*, *P. trichocarpa* and the hybrid *P. tremula* × *P. tremuloides* (Ostry, 2013). In the central and northern Scandinavia willows seem to be the main hosts of *E. mammata*, mostly *Salix caprea*, *S. pentandra* and *S. myrsinifolia* (Mathiasen, 1993).
Reported evidence of impact		*Entoleuca mammata* is an EU protected zone quarantine pest.

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Evidence that the commodity is a pathway	Plants for planting may carry ascospores and mycelium of *E. mammata* also asymptomatically (EFSA PLH Panel, 2017; EPPO, 2023) therefore the commodity is a pathway.
Surveillance information	According to the Dossier Section 1.2 *E. mammata* is present in Ukraine: not under official control.

A.2.2 | Possibility of pest presence in the nursery

A.2.2.1 | Possibility of entry from the surrounding environment

Entoleuca mammata is present in Ukraine (Агафонов & Акулов, 2024; Dossier Section 1.2; EFSA PLH Panel, 2017; EPPO, 2024; GBIF, 2025). The pathogen was found in vicinity of the village of Chepelin, Zolochiv district, Kharkiv region.

The pathogen can naturally spread with ascospores dispersed by air currents also over long distance.

The nearest forest harbouring confirmed hosts (i.e. *Betula* sp.) is located 18–20 km far from the production sites (Dossier Section 1.2). However, *Betula* trees are also reported in the surroundings of the nursery (within 2 Km radius), where other hosts such as *Acer* and *Populus* are not reported to be present (Dossier Section 1.2).

Uncertainties:

– The presence of the pathogen on host plants in the surrounding area.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for *E. mammata* to enter the nursery from surrounding environment via ascospores transported by wind and air currents.

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

Cuttings are obtained exclusively from mother plants grown in nursery. They have been obtained from certified authorised nurseries in the European Union. Seed propagation is not used to avoid segregation of varieties (Dossier Sections 1.1 and 1.2).

Uncertainties:

– Provenance of new plants other than *Acer*, including *Betula* and *Populus*, which are grown in the nursery.
– Whether plant material of new plants other than *Acer* is certified.

Taking into consideration the above evidence and uncertainties, the Panel cannot exclude that the pathogen could enter the nursery via plant material of host species other than *Acer* which are grown in the production in the area.

A.2.2.3 | Possibility of spread within the nursery

If present in the nursery, the pathogen could spread within the nursery by means of airborne ascospores. Suitable hosts are present in the nursery that could act as inoculum sources, including *Acer* spp., *Betula* spp. and *Populus* spp. In addition, a continuous hedge composed of *Carpinus*, another host of the pest, surrounds the nursery (Dossier Sections 1.1 and 1.2).

Uncertainties:

– Whether ascospores are produced on infected nursery plants.
– Efficiency in detecting and removing *E. mammata* infected plants.

Taking into consideration the above evidence and uncertainties, the Panel considers that the spread of the pathogen within the nursery is possible by air currents.

A.2.3 | Information from interceptions

In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting neither from Ukraine nor from other countries due to the presence of *E. mammata* between the years 1995 and April 2025 (EUROPHYT, 2025; TRACES-NT, 2025).

A.2.4 | Evaluation of the risk mitigation measures

In the table below, all risk mitigation measures currently applied in Ukraine are listed and an indication of their effectiveness on *E. mammata* is provided. The description of the risk mitigation measures currently applied in Ukraine is provided in the Table 6.

N	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Registration of production sites	Yes	The risk mitigation measure is expected to be effective in reducing the likelihood of presence of the pathogen on the commodity. Uncertainties: – None
2	Certified plant material	Yes	The risk mitigation measure is expected to be effective in reducing the likelihood of presence of the pathogen on the commodity as the cuttings are obtained from mother plants which originate from certified authorised nurseries from the EU and mother plants undergo routine phytosanitary control and preventive treatment. Uncertainties: – Whether plant material of other hosts of the pest present in the nursery (e.g. *Populus*, *Betula*) is also certified.
3	Growing media	No	Not relevant
4	Surveillance, monitoring and sampling	Yes	This measure could have some effect. Uncertainties: – Whether symptoms caused by the pathogen on *Acer* are recognisable.
5	Hygiene measures	Yes	The cleaning and disinfection of tools with appropriate product can prevent the spread of the pathogen within the nursery. Uncertainties: – Whether disinfection with alcohol is used on pruning tools. – Whether *E. mammata* infects pruning wounds.
6	Removal of infested plant material	Yes	The risk mitigation measure could have some effect, if implemented. Uncertainties: – Whether the measure is implemented. – Whether infested plants are detected thereby allowing their removal.
7	Irrigation water	No	Not relevant
8	Application of pest control products	Yes	Although *E. mammata* is generally not a target of the pesticide treatments in the nursery, some fungicides that are applied against fungi could reduce the likelihood of the infection by the pathogen. Uncertainties: – The level of efficacy of fungicides in reducing infection of *E. mammata*.
9	Measures against soil pests	No	Not relevant
10	Inspections and management of plants before export	Yes	This measure could have some effect. Uncertainties: – Whether symptoms caused by the pathogen on *Acer* are recognisable – The level of accuracy of inspections as plants are examined during loading up on of the vehicle.
11	Separation during transport to the destination	No	Not relevant

A.2.5 | Overall likelihood of pest freedom for bare root plants (1–4 years old)

A.2.5.1 | Reasoning for a scenario which would lead to a reasonably low number of infected for bare root plants (1–4 years old)

The scenario assumes that the pest and its major hosts (e.g. *Populus tremula*, *Populus* spp.) are not present in the area where the nursery is located.

A.2.5.2 | Reasoning for a scenario which would lead to a reasonably high number of infected for bare root plants (1–4 years old)

The scenario assumes a high pressure of the pathogen in the nursery and in the surroundings as suitable hosts are present. Older plants are exposed to the pathogen for longer period of time. The scenario assumes *Acer* spp. to be hosts for the pathogen and that pruning may enhance the probability of infection. The scenario also assumes that symptoms of the disease are not easily recognisable during inspections.

A.2.5.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infected for bare root plants (1–4 years old) (Median)

The scenario assumes a limited presence of the pathogen in the nursery and the surroundings as mature *Populus tremula* stands are not expected to be widespread. Plants are exposed to the pathogen for a sufficient period of time to cause infection through mechanical wounds. *Acer* spp. are considered minor hosts.

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

The limited information on occurrence of the pathogen in Ukraine results in high level of uncertainties for infestation rates below the median. Otherwise, the pest pressure from the surroundings is expected to be low giving less uncertainties for rates above the median.

A.2.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Entoleuca mammata* on bare root plants (1–4 years old)

The following Tables show the elicited and fitted values for pest 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 *Entoleuca mammata* per 10,000 plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					8		15		35					70
EKE	0.117	0.365	0.865	2.06	3.96	6.68	9.79	17.3	27.1	33.3	41.0	49.1	57.7	64.1	70.1

Note: The EKE results is the BetaGeneral (0.80639, 2.2251, 0, 82) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infected plants the pest freedom was calculated (i.e. = 10,000 – number of infected plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.6.

TABLE A.6 The uncertainty distribution of plants free of *Entoleuca mammata* 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	9930					9965		9985		9992					10,000
EKE results	9930	9936	9942	9951	9959	9967	9973	9983	9990	9993	9996	9998	9999.1	9999.6	9999.9

Note: The EKE results are the fitted values.

(A)

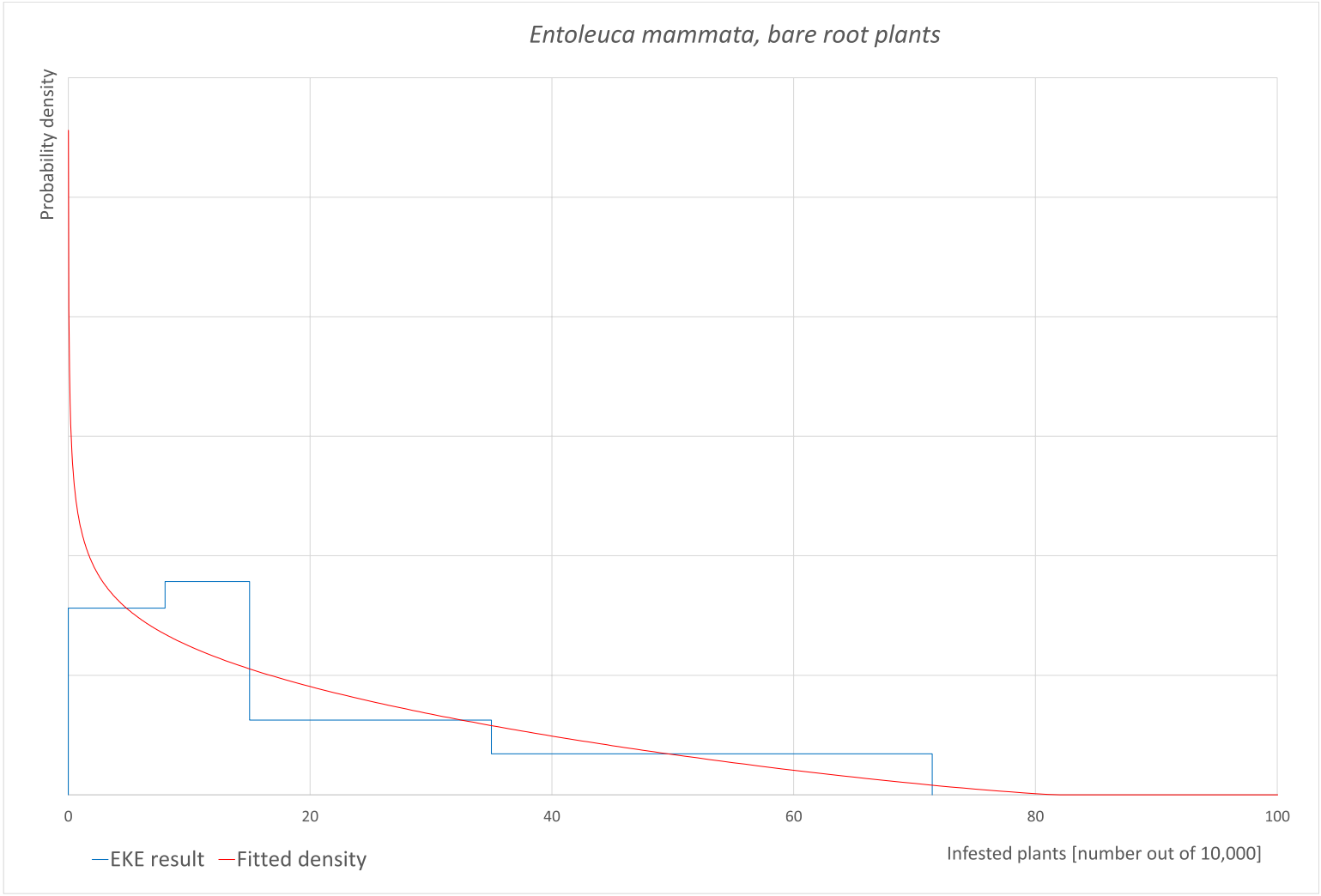

FIGURE A.3 (Continued)

(B)

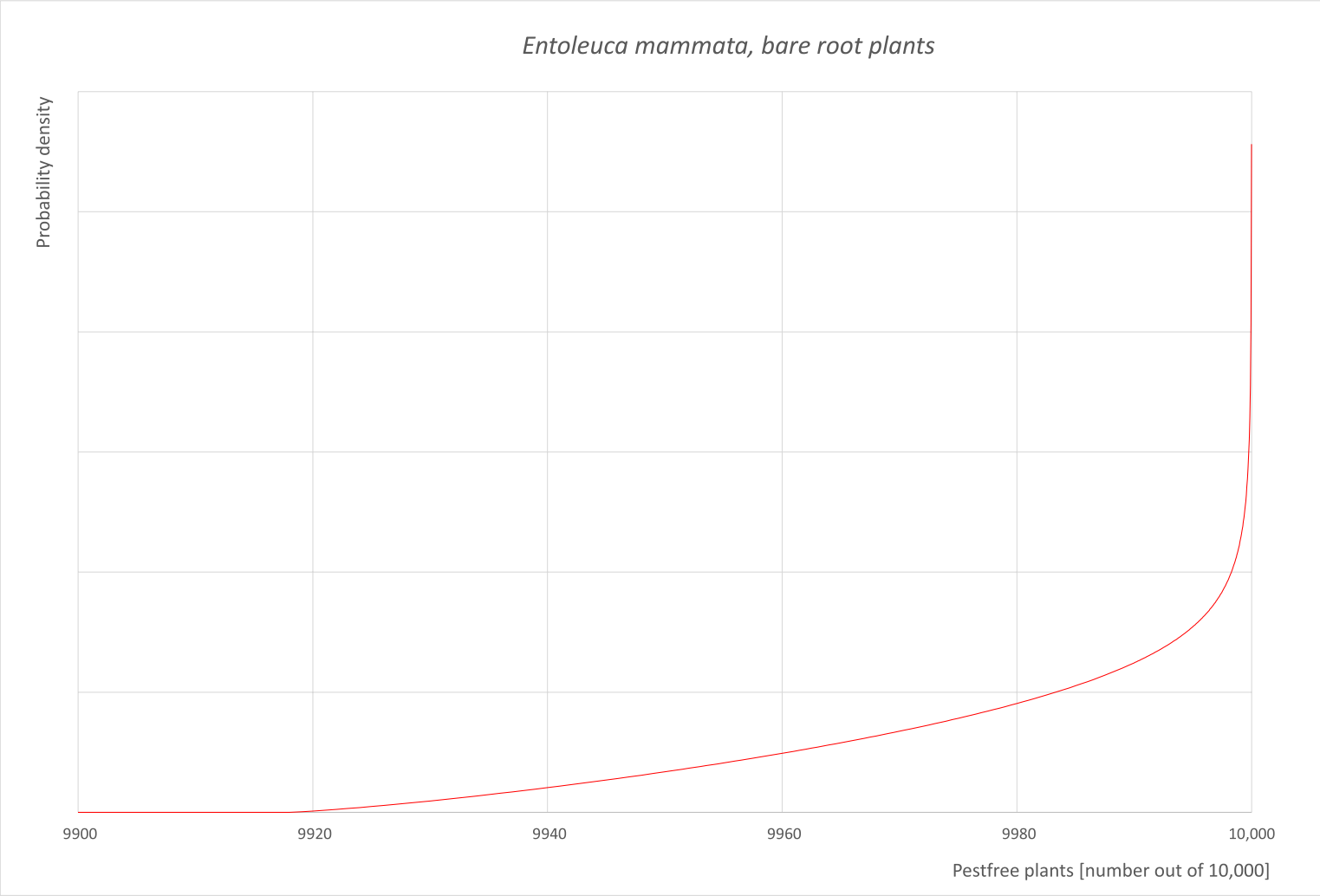

FIGURE A.3 (Continued)

(C)

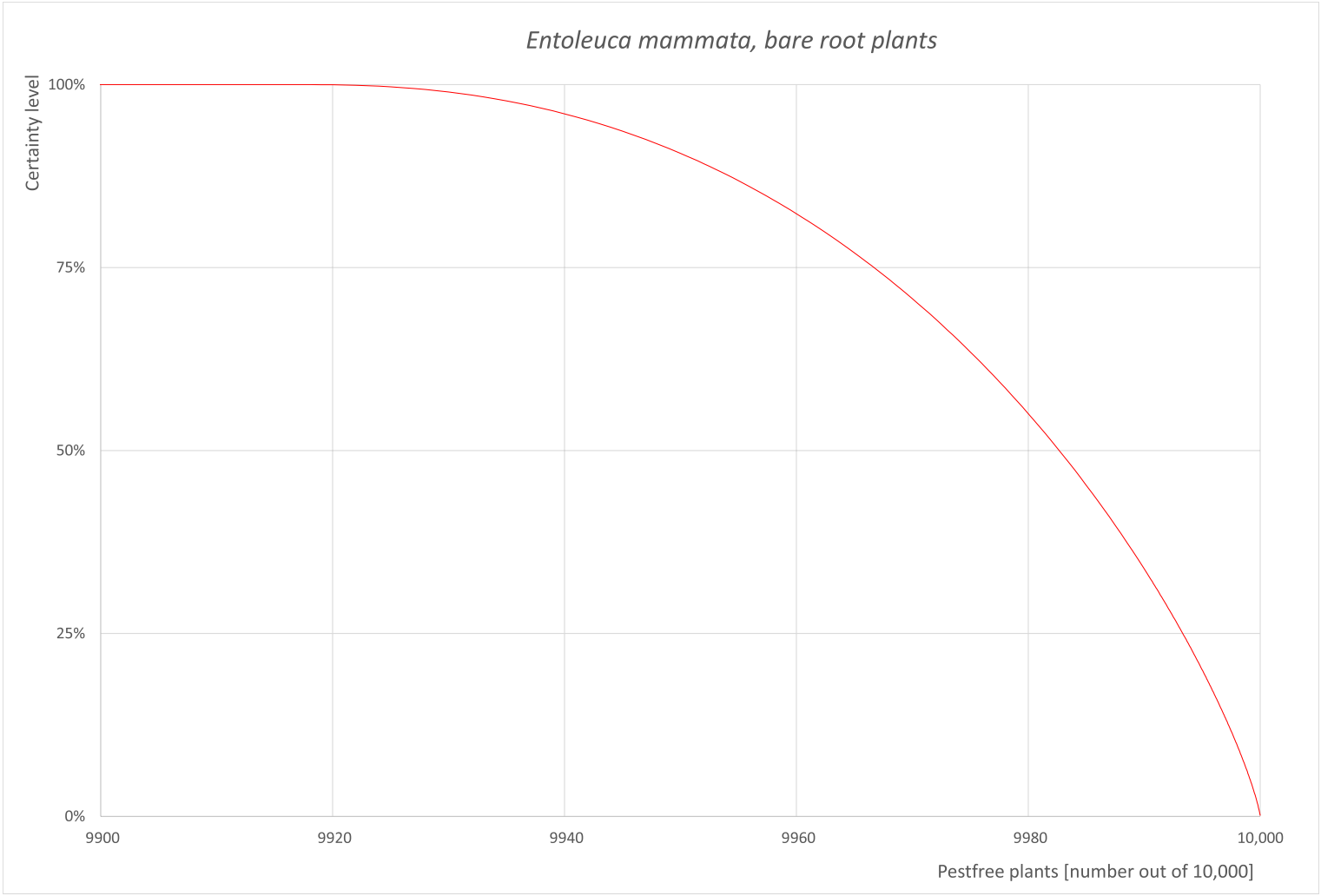

FIGURE A.3 (A) Elicited uncertainty of pest infection per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. =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

A.2.6 | Overall likelihood of pest freedom for plants in pots (1–2 years old)

A.2.6.1 | Reasoning for a scenario which would lead to a reasonably low number of infected plants in pots (1–2 years old)

The scenario assumes that the pest and its major hosts (e.g. *Populus tremula*, *Populus* spp.) are not present in the area where the nursery is located.

A.2.6.2 | Reasoning for a scenario which would lead to a reasonably high number of infected plants in pots (1–2 years old)

The scenario assumes a high pressure of the pathogen in the nursery and in the surroundings as suitable hosts are present. The scenario assumes *Acer* spp. to be hosts for the pathogen and that pruning may enhance the probability of infection. The scenario also assumes that symptoms of the disease are not easily recognisable during inspections.

A.2.6.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infected plants in pots (1–2 years old) (Median)

The scenario assumes a limited presence of the pathogen in the nursery and the surroundings as mature *Populus tremula* stands are not expected to be widespread. Plants are exposed to the pathogen for a relatively short period of time. However, pruning is expected to be done and this, by creating wounds, may facilitate infections. *Acer* spp. are considered minor hosts.

A.2.6.4 | Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/ interquartile range)

The limited information on occurrence of the pathogen in Ukraine results in high level of uncertainties for infestation rates below the median. Otherwise, the pest pressure from the surroundings is expected to be low giving less uncertainties for rates above the median.

A.2.6.5 | Elicitation outcomes of the assessment of the pest freedom for *Entoleuca mammata* on plants in pots (1–2 years old)

The following Tables show the elicited and fitted values for pest infection (Table A.7) and pest freedom (Table A.8).

TABLE A.7 Elicited and fitted values of the uncertainty distribution of pest infestation by *Entoleuca mammata* per 10,000 plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					5		10		25					50
EKE	0.0420	0.153	0.407	1.09	2.27	4.08	6.25	11.7	19.1	23.7	29.5	35.5	41.7	46.1	50.1

Note: The EKE results is the BetaGeneral (0.70917, 1.926, 0, 56.7) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infected plants the pest freedom was calculated (i.e. = 10,000 – number of infected plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.8.

TABLE A.8 The uncertainty distribution of plants free of *Entoleuca mammata* per 10,000 plants calculated by Table A.7.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9950					9975		9990		9995					10,000
EKE results	9950	9954	9958	9964	9971	9976	9981	9988	9994	9996	9997.7	9998.9	9999.6	9999.8	10,000

Note: The EKE results are the fitted values.

(A)

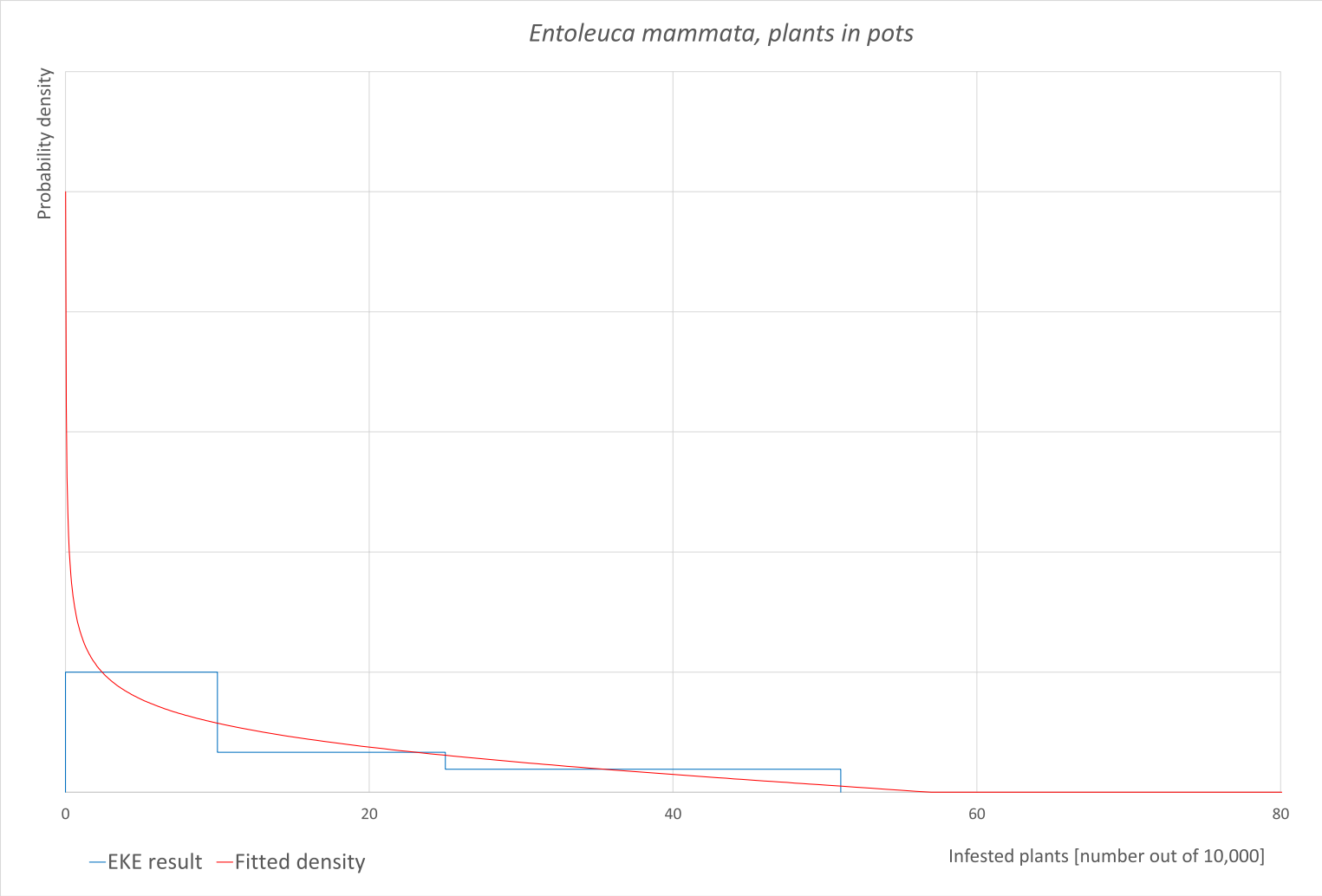

FIGURE A.4 (Continued)

(B)

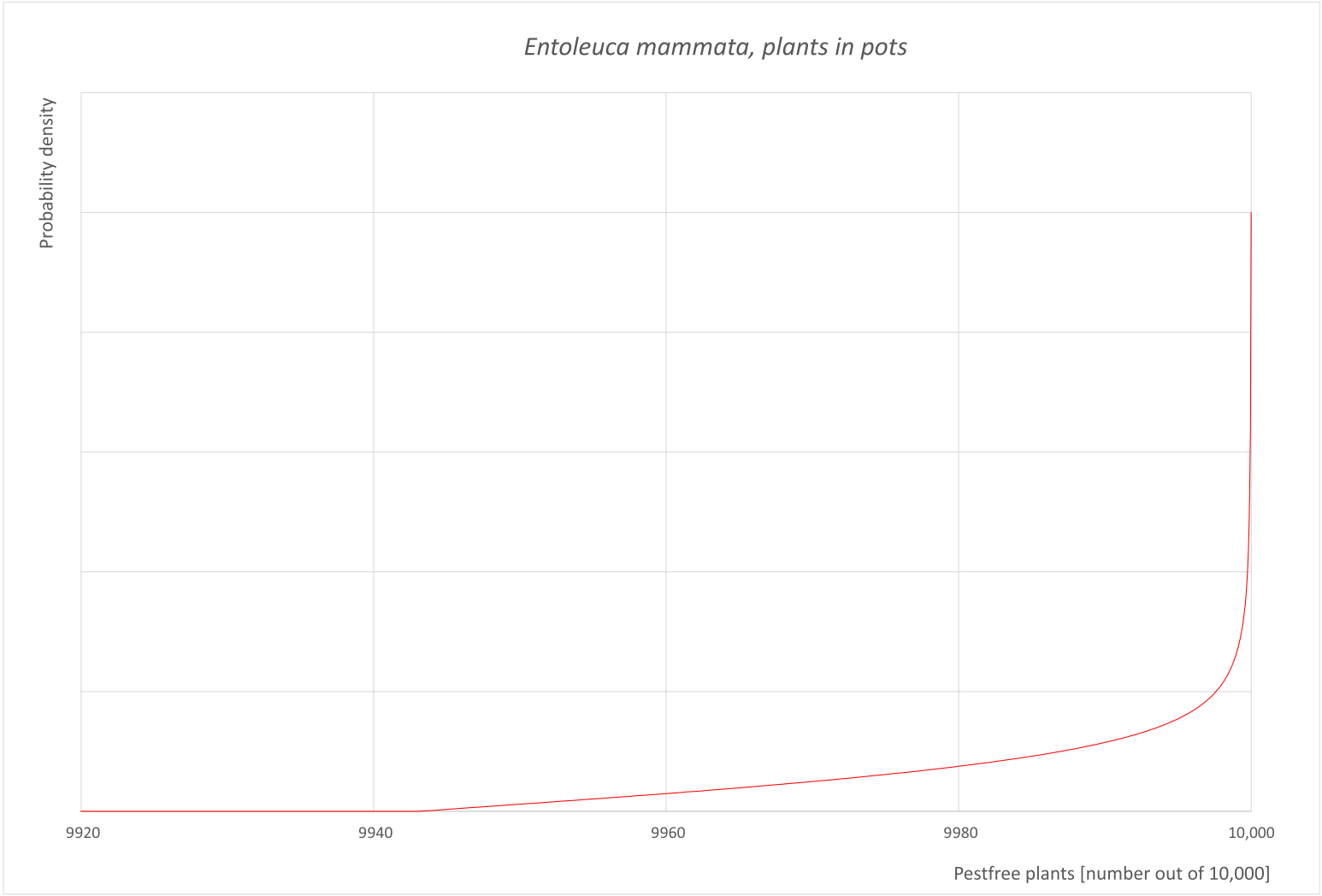

FIGURE A.4 (Continued)

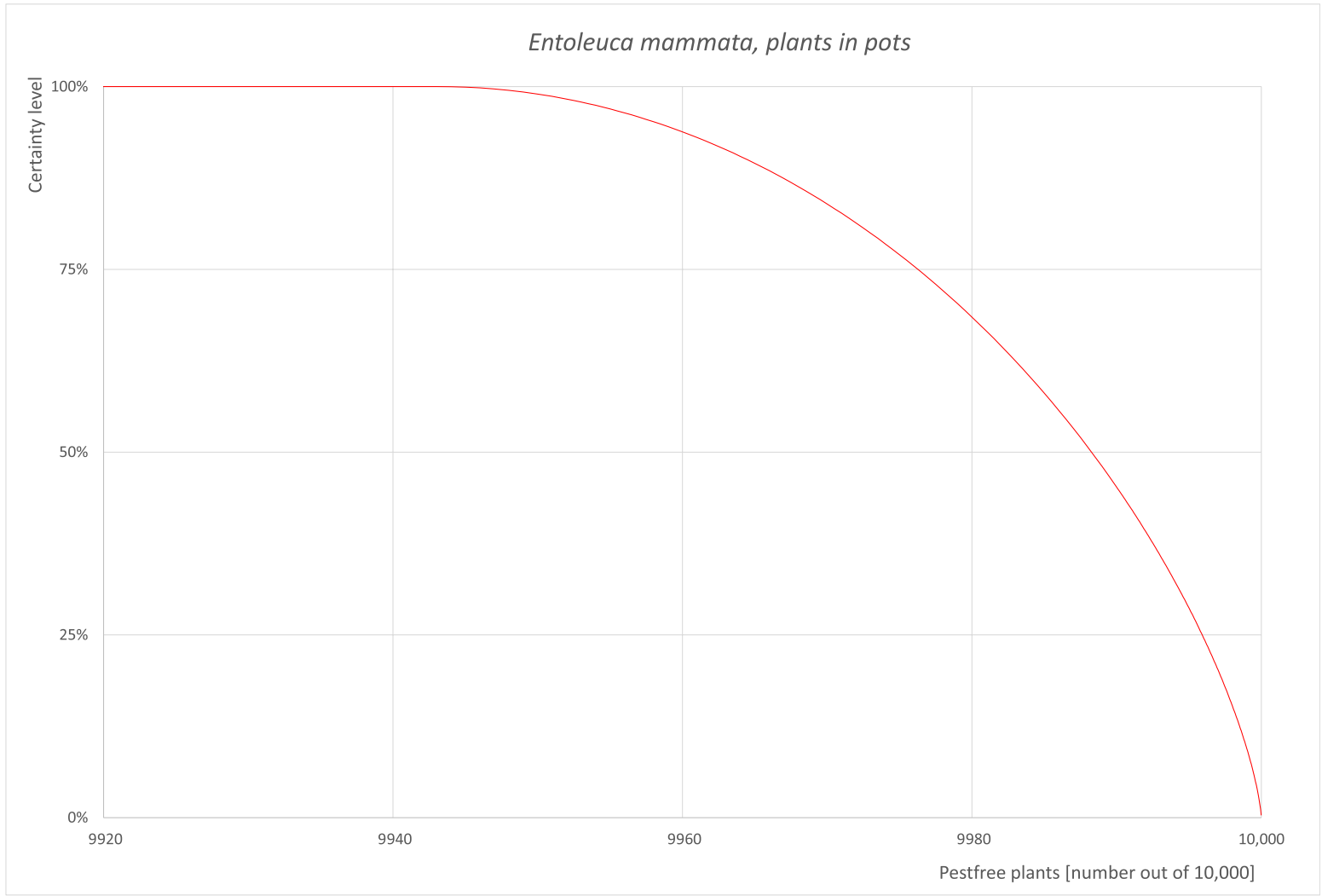

FIGURE A.4 (A) Elicited uncertainty of pest infection per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. = 1 – pest infection proportion expressed as percentage); (C) descending uncertainty distribution function of pest infection per 10,000 plants.

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A.3 | *LOPHOLEUCASPIS JAPONICA*

A.3.1 | Organism information

Taxonomic information	Current valid scientific name: *Lopholeucaspis japonica* Synonyms: *Euleucaspis japonica*, *Leucaspis hydrangeae*, *Leucaspis japonica*, *Leucaspis japonica darwiniensis*, *Leucaspis japonicus*, *Leucaspis menoni*, *Leucodiaspis hydrangeae*, *Leucodiaspis iaponica*, *Leucodiaspis japonica*, *Leucodiaspis japonica darwiniensis*, *Lopholeucaspis darwiniensis*, *Lopholeucaspis japonica darwiniensis*, *Lopholeucaspis menoni* Name used in the EU legislation: *Lopholeucaspis japonica* Cockerell [LOPLJA] Order: Hemiptera Family: Diaspididae Common name: Japanese long scale, Japanese maple scale, Japanese pear white scale, Japanese scale, Japanese baton shaped scale, pear white scale Name used in the Dossier: *Lopholeucaspis japonica*

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Group	Insects
EPPO code	LOPLJA
Regulated status	The pest is listed in Annex II of Regulation (EU) 2019/2072 as *Lopholeucaspis japonica* Cockerell [LOPLJA]. The pest is included in the EPPO A2 list (EPPO, 2024). *Lopholeucaspis japonica* is quarantine in Belarus, Israel, Mexico, Morocco and Tunisia. It is reported on A1 list of Argentina, Bahrain, East Africa, Chile, Kazakhstan, Serbia, Switzerland, the UK and Uzbekistan. It is also on A2 list of Azerbaijan, Georgia, Russia, Türkiye and EAEU (=Eurasian Economic Union – Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia) (EPPO, 2025).
Pest status in Ukraine	*Lopholeucaspis japonica* is present in Ukraine (EPPO, 2023a; García Morales et al., 2025; Kondo & Watson, 2022; Stryukova & Stryukov, 2022). It was found in Crimea (Sebastopol) in 1996 (EPPO, 2023c) and in 2019 (Stryukova & Stryukov, 2022). According to the Dossier Section 1.2 the pest is present: not widely distributed and under official control as a regulated non-quarantine pest (RNQP).
Pest status in the EU	*Lopholeucaspis japonica* is absent in the EU (EPPO, 2023a). It was intercepted in Croatia on *Buxus* plants in 2009 (Masten Milek, Šimala, & Pintar, 2016), Greece on olives in 1983 (EFSA PLH Panel, 2018; EPPO, 2018), Italy in 1999 (Pellizzari & Vettorazzo, 1999) and Slovakia in 1994 (EPPO, 2023a), but never found acclimatised in any of the countries (EFSA PLH Panel, 2018; EPPO, 2023b).
Host status on *Acer*	*Lopholeucaspis japonica* is a pest of these *Acer* species: *Acer palmatum* in Japan (Murakami, 1970) and South Korea (Suh, 2020); *Acer saccharum* in Ohio (Kosztarab, 1962); *Acer insigne* (=*Acer velutinum*) in Iran (Moghaddam, 2013); *Acer pictum* var. *mono* and *Acer ukurunduense* (=*Acer caudatum*) in South Korea (Suh, 2020). There is no information on whether *L. japonica* can also attack *Acer rubrum*, *A.* × *freemanii*, *A. platanoides*, *A. griseum*, *A. saccharinum*, *A. tataricum* and *A. tataricum* subsp. *ginnala*.
PRA information	Pest Risk Assessments available: – Import risk analysis: Pears (*Pyrus bretschneideri*, *Pyrus pyrifolia* and *Pyrus* sp. nr. *communis*) fresh fruit from China (Tyson et al., 2009); – Final import risk analysis report for fresh unshu mandarin fruit from Shizuoka prefecture in Japan (Biosecurity Australia, 2009); – Final import risk analysis report for fresh apple fruit from the People's Republic of China (Biosecurity Australia, 2010); – Scientific opinion on the pest categorisation of *Lopholeucaspis japonica* (EFSA PLH Panel, 2018); – UK Risk Register Details for *Lopholeucaspis japonica* (DEFRA, 2020).
Other relevant information for the assessment	
Biology	*Lopholeucaspis japonica* is an oyster shell-shaped armoured scale (Fulcher et al., 2011), originating from Far East (CABI, 2022; Pellizzari, Dalla Montà, & Vacante, 2005) and it is present in Asia (Afghanistan, China, India, Iran, Japan, Myanmar, Nepal, North Korea, Pakistan, South Korea, Taiwan), Europe (Azerbaijan, Georgia, Russia, Türkiye, Ukraine), North America (18 US states) and South America (Brazil) (CABI, 2022; EPPO, 2023a). *Lopholeucaspis japonica* is a pest of tea in China (Li, Wang, & Waterhouse, 1997). It is a serious pest of many crops (citrus, fruit trees, tea, tung) and ornamental plants in the area around the Black Sea (Tabbatadze & Yasnosh, 1999). In the US it is known to damage *Acer* and *Pyracantha* (Miller & Davidson, 1990; 2005). Females of *L. japonica* develop through egg, nymph (two instars) and adult, while males have additional two stages called pre-pupa and pupa (CABI, 2022; EFSA PLH Panel, 2018; Miller & Davidson, 2005). Each female lays on average 25 eggs underneath its body (Addesso et al., 2016; Fulcher et al., 2011). The range was reported to be between 4 and 60 eggs per female (EPPO, 1997; Tabatadze & Yasnosh, 1999). Adult males are small (1.014–1.159 mm long, including genitalia), dark violet and winged (Bienkowski, 1993), while adult females are sessile enclosed in chitinous 'puparium' (Tabatadze & Yasnosh, 1999). Female body and its scale are 1.38–1.515 mm (1.68–1.8 mm) long and 0.51–0.525 mm (0.51–0.63 mm) wide (Kuwana, 1923). The colour of females, eggs and nymphs is lavender. The wax covering the body of scales is greyish-white (Addesso et al., 2016; Fulcher et al., 2011). Eggs and newly hatched nymphs are approximately 0.25 mm long (Kuwana, 1923). According to CABI (2022) the second instar nymphs are 0.5–0.6 mm long and are covered by a scale, which is 1.5–2 mm long (in female) and 0.8–1 mm long (in male). Only adult males and crawlers are able to disperse, the other stages are sessile (Addesso et al., 2016). Crawlers of armoured scales can be carried out to further places by wind or other insects (ants, flies and ladybirds), occasionally also by human transport (Magsig-Castillo et al., 2010). Crawlers are reported to secrete their wax covering within a few short hours after settling (Gill, Shrewsbury, & Davidson, 2012). *Lopholeucaspis japonica* 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 & 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, Joshi, & Pal, 2018). *Lopholeucaspis japonica* is usually on bark of branches and trunk but can be found also on leaves (Gill, Shrewsbury, & Davidson, 2012; Murakami, 1970) and sometimes on fruits (EPPO, 1997; Murakami, 1970). *Lopholeucaspis japonica* overwinters as an immature stage on trunks and branches in Tennessee (Fulcher et al., 2011) and second instar males and females in Maryland (Gill, Shrewsbury, & Davidson, 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). Possible pathways of entry for *Lopholeucaspis japonica* are plants for planting (excluding seeds), bonsai, cut flowers and cut branches (EFSA PLH Panel, 2018).

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Symptoms	**Main type of symptoms**	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, Shrewsbury, & Davidson, 2012). Moreover, heavy infestations give bark a greyish-white appearance (EFSA PLH Panel, 2018). Symptoms observed on pomegranate in India were yellowing of leaves, poor fruit set and stunted plant growth (Harsur, Joshi, & Pal, 2018). There is no information on the symptoms caused to *Acer* plants.
	Presence of asymptomatic plants	No report was found on the presence of asymptomatic plants. If populations of *L. japonica* are small, they are difficult to detect (EFSA PLH Panel, 2018).
	Confusion with other pests	*Lopholeucaspis japonica* can be confused with other armoured scales. It is similar to *L. cockerelli* but can be differentiated by the number of macroducts (Miller & Davidson, 2005). Other very similar scale is *Pseudaulacaspis pentagona* (Fulcher et al., 2011). A morphological or molecular analysis is needed in order to distinguish among them. See Kuwana (1923), Bienkowski (1993), Takagi (2002) and Miller and Davidson (2005) for a thorough description and illustrations.
Host plant range		*Lopholeucaspis japonica* is a polyphagous armoured scale and feeds on broad leaf plants belonging to 37 families (García Morales et al., 2025). Some of the many hosts of *L. japonica* are *Acer insigne* (=*Acer velutinum*), *A. palmatum*, *A. pictum* var. *mono*, *A. saccharum*, *A. ukurunduense* (=*Acer caudatum*), *Carpinus betulus*, *Cinnamomum camphora*, *Citrus junos*, *C. unshiu*, *Diospyros kaki*, *Distylium racemosum*, *Elaeagnus umbellata*, *Euonymus alatus*, *Euonymus japonicus*, *Gleditsia japonica*, *Hydrangea integrifolia*, *Ilex crenata*, *Magnolia denudata*, *M. grandiflora*, *M. kobus*, *Malus pumila*, *Paeonia lactiflora*, *Paeonia suffruticosa*, *Poncirus trifoliata*, *Prunus* × *yedoensis*, *Pyracantha*, *Pyrus pyrifolia*, *Robinia pseudoacacia*, *Rosa chinensis*, *R. multiflora*, *Salix* sp., *Staphylea bumalda*, *Syringa oblata*, *Wisteria*, *Ziziphus jujuba* (García Morales et al., 2025; Suh, 2020) and *Betula* spp. (Shrewsbury et al., 2013). For a complete host list see García Morales et al. (2025) and Suh (2020).
Reported evidence of impact		*Lopholeucaspis japonica* is an EU-quarantine pest.
Evidence that the commodity is a pathway		According to EFSA PLH Panel (2018) *L. japonica* can travel with plants for planting. Moreover, it was intercepted three times with bonsai plants/plants for planting of *Acer* sp. and *Zelkova serrata* from China (Pellizzari & Vettorazzo, 1999; EUROPHYT, 2025). Therefore, the commodity can be a pathway for *L. japonica*.
Surveillance information		*Lopholeucaspis japonica* is present in Ukraine: not widely distributed and under official control as a regulated non-quarantine pest (RNQP) in Ukraine. It is regulated only if it is detected on planting material. It has not been detected in nurseries or on planting material in Ukraine (Dossier Section 1.2).

A.3.2 | Possibility of pest presence in the nursery

A.3.2.1 | Possibility of entry from the surrounding environment

The pest was found in Crimea (Sebastopol). Given that *L. japonica* is very polyphagous, if present in the surroundings, it could be associated with several crops and wild hosts. The nearest forest stands are located 18–20 km away and consist predominantly of *Pinus sylvestris* (Scots pine) and *Betula pendula* (silver birch), growing on sandy soils. In addition, *L. japonica* hosts such as *Betula* spp., *Malus* spp., *Prunus* spp., *Vitis* spp. are present in the surrounding area of the nursery within 2 km. No wild or cultivated *Acer* spp. have been identified within this 2 km radius. Adult males and crawlers are able to disperse. Crawlers can be carried out to further places by wind or other insects (ants, flies and ladybirds), occasionally also by human and machines.

Uncertainties:

– Considering that the species is associated with warm habitats, it is uncertain whether it will achieve high density populations in the areas of production. The pest was found in Crimea (Sebastopol) in 1996 (EPPO, 2023c) and in 2019 (Stryukova & Stryukov, 2022).

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

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

Only vegetative propagation through cuttings is used, while seed propagation is not. Semi-lignified cuttings are obtained exclusively from mother plants grown in nursery, which have been obtained from certified authorised nurseries in the European Union (Dossier Sections 1.1 and 1.2). The pest can be found on the trunk, stem, branches, leaves of plants for planting (scions, grafted rootstocks). Although adults can be relatively easily spotted during visual inspections, young

stages can be difficult to detect. The pest can be hidden inside bark cracks. In case of low populations, the species can be overlooked regarded as trunk spots. Introduction of the pest with certified material is very unlikely.

Uncertainties:

– Uncertain if certified material is screened for this pest
– Whether other tree species, potential hosts of the pest, grown in the nursery are also certified
– The age of the mother plants

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

A.3.2.3 | Possibility of spread within the nursery

If the scale enters the nursery from the surroundings, the pest could spread within the nursery either by passive dispersal (e.g. wind), especially young instars than can be easily uplifted by wind, infested plant material, or by nursery workers and machinery. Active dispersal is possible and movement from plant to plant by mobile young instars is possible. Given that the pest is very polyphagous it could be associated with other crops in the nursery (e.g. *Prunus* spp., *Betula* spp.). Although the nursery perimeter is secured with a fence and a continuous hedge composed of *Carpinus betulus* (European hornbeam) reaching a height of 4 metres (Dossier Section 1.2), *Carpinus* sp. is a host of *L. japonica* (EFSA PLH Panel, 2018).

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

Uncertainties:

– Whether *Carpinus betulus* is a good host.

Taking into consideration the above evidence and uncertainties, the Panel considers that the spread of the pest within the nursery is possible either by wind, nursery workers, machinery, equipment and clothing.

A.3.3 | Information from interceptions

In the EUROPHYT/TRACES-NT database there are no records of notification of *Acer* plants for planting from Ukraine due to the presence of *L. japonica* between the years 1995 and April 2025 (EUROPHYT, 2025; TRACES-NT, 2025).

There are two records of notification of *Acer* sp. bonsai plants from China due to the presence of *L. japonica* in 1999 (EUROPHYT, 2025).

A.3.4 | Evaluation of the risk mitigation measures

In the table below, all risk mitigation measures currently applied in Ukraine are listed and an indication of their effectiveness on *L. japonica* is provided. The description of the risk mitigation measures currently applied in Ukraine is provided in the Table 6.

N	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Registration of production sites	Yes	The risk mitigation measure is expected to be effective in reducing the likelihood of presence of the pest on the commodity. Uncertainties: – The pest at low density is not associated with obvious symptoms, therefore it can be missed.
2	Certified plant material	Yes	The risk mitigation measure is expected to be effective in reducing the likelihood of presence of the pest on the commodity as the cuttings are obtained from mother plants which originate from certified authorised nurseries from the EU and mother plants undergo routine phytosanitary control and preventive treatment. Uncertainties: – The pest at low density is not associated with obvious symptoms, therefore it can be missed.
3	Growing media	No	Not relevant
4	Surveillance, monitoring and sampling	Yes	This measure can have some effect. Scales can be easily found during inspection with magnifying glasses, which is triggered by the observation of suspected symptoms. Uncertainties: – There is uncertainty on the capacity to detect crawlers on the bark with the naked eye. – The pest at low density is not associated with obvious symptoms, therefore it can be missed.

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N	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
5	Hygiene measures	Yes	Crawlers could move with equipment/clothes of the nursery staff. However, the described measures could have very little effect in reducing the likelihood of presence of the pest on the commodity. Uncertainties: – None
6	Removal of infested plant material	Yes	Removal of infested plants will have a clear effect on the prevalence of the pest. Uncertainties: – Whether the measure is implemented. – Whether infested plants are detected thereby allowing their removal. – Whether infested plant material is properly removed from the nursery.
7	Irrigation water	No	Not applicable
8	Application of pest control products	Yes	Spray of insecticides can only kill the crawlers that are present on the plants at the time of spraying. Once they are fixed and covered by the scale they are not expected to be killed by the specified insecticides. Uncertainties: – Scales are protected by their shell; therefore, they are difficult to be reached by the insecticides. – Scales are known to develop quick resistance but change of the active compound of insecticides can reduce the risk. – Level of efficacy of thiamethoxam, pirimphos-methyl, abamectin, spirotetramat, acetamiprid and imidacloprid on the scales.
9	Measures against soil pests	No	Not relevant
10	Inspections and management of plants before export	Yes	This measure can have an effect. Scales can be easily found during inspection with magnifying glasses, which is triggered by the observation of suspected symptoms. However, the pests colour being similar to that of the bark of *Acer*, low density populations may go undetected. Uncertainties: – The level of accuracy of inspections as plants are examined during loading up on of the vehicle. – There is uncertainty on the capacity to detect crawlers on the bark with the naked eye. – The pest at low density is not associated with obvious symptoms, therefore it can be missed.
11	Separation during transport to the destination	No	Not relevant

A.3.5 | Overall likelihood of pest freedom for *Lopholeucaspis japonica* for bare root plants (1–4 years old)

A.3.5.1 | Reasoning for a scenario which would lead to a reasonably low number of infected bare root plants (1–4 years old)

The scenario assumes that the pest may be absent from the area surrounding the nursery and that climatic conditions are unsuitable for its establishment. It also considers that, as the pest is regulated as an RNQP in Ukraine, the nursery will implement control measures if it is detected.

A.3.5.2 | Reasoning for a scenario which would lead to a reasonably high number of infected bare root plants (1–4 years old)

The scenario assumes that the nursery is in an area with high pest pressure leading to many plants to be infested. Main hosts can be present in the vicinity of the nursery, and the pest may be widespread in Ukraine as it can be easily overlooked if the population density is low. However, this scenario also assumes that nursery will take measures if the pest is abundant and that the pest is regulated in Ukraine, therefore it will exist awareness about it. Finally, the scenario considers that mother plants are from certified material and the nursery use its own propagation material.

A.3.5.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infected bare root plants (1–4 years old) (Median)

The central scenario assumes that older plants (1–4 years) may have higher infestation levels, and the pest could be introduced into the nursery from surrounding infested areas or via plants originating from regions where the pest is already present. However, the scenario also considers that the pest is present in only part of the country, and since it is regulated, it

would likely have been detected and controlled if present near the nursery. Therefore, the estimate of the median is shifted towards a low-risk scenario.

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

Limited information on the pathogen's presence across much of Ukraine leads to high uncertainty for infestation rates below the median, while less uncertainty exists for rates above the median due to less favourable climatic conditions in parts of the country, pest regulation as RNQP, likely detection near nurserys and the expectation that control measures would be implemented if detected.

A.3.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Lopholeucaspis japonica* on bare root plants (1–4 years old)

The following Tables show the elicited and fitted values for pest infection (Table A.9) and pest freedom (Table A.10).

TABLE A.9 Elicited and fitted values of the uncertainty distribution of pest infestation by *Lopholeucaspis 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	0					45		90		160					300
EKE	1.98	4.69	9.03	17.5	29.0	43.6	58.8	92.6	133	158	188	219	252	276	300

Note: The EKE results is the BetaGeneral (1.0715, 2.4648, 0, 352) distribution fitted with @Risk version 7.6.

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

TABLE A.10 The uncertainty distribution of plants free of *Lopholeucaspis japonica* per 10,000 plants calculated by Table A.9.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9700					9840		9910		9955					10,000
EKE results	9700	9724	9748	9781	9812	9842	9867	9907	9941	9956	9971	9982	9991	9995	9998

Note: The EKE results are the fitted values.

(A)

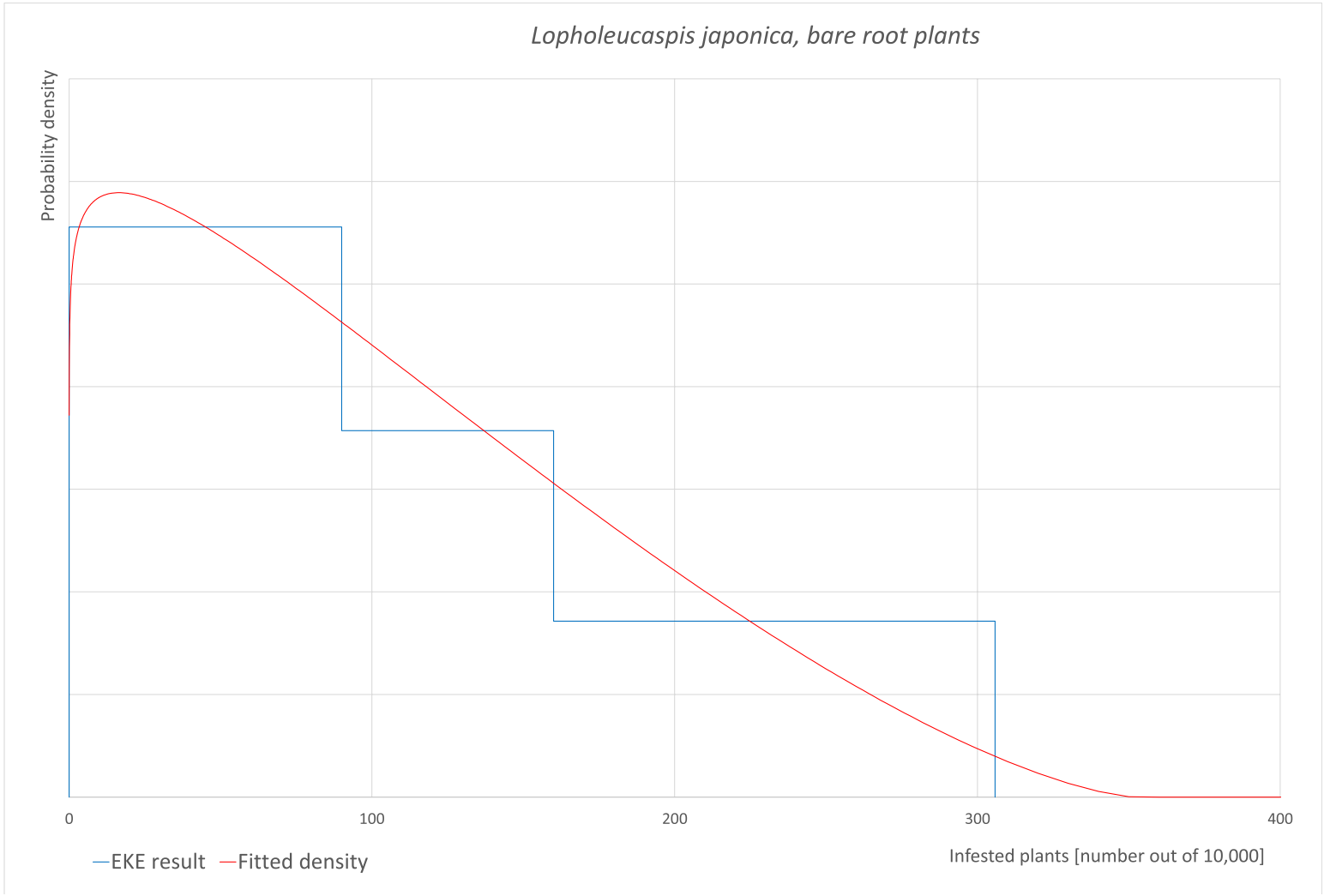

FIGURE A.5 (Continued)

(B)

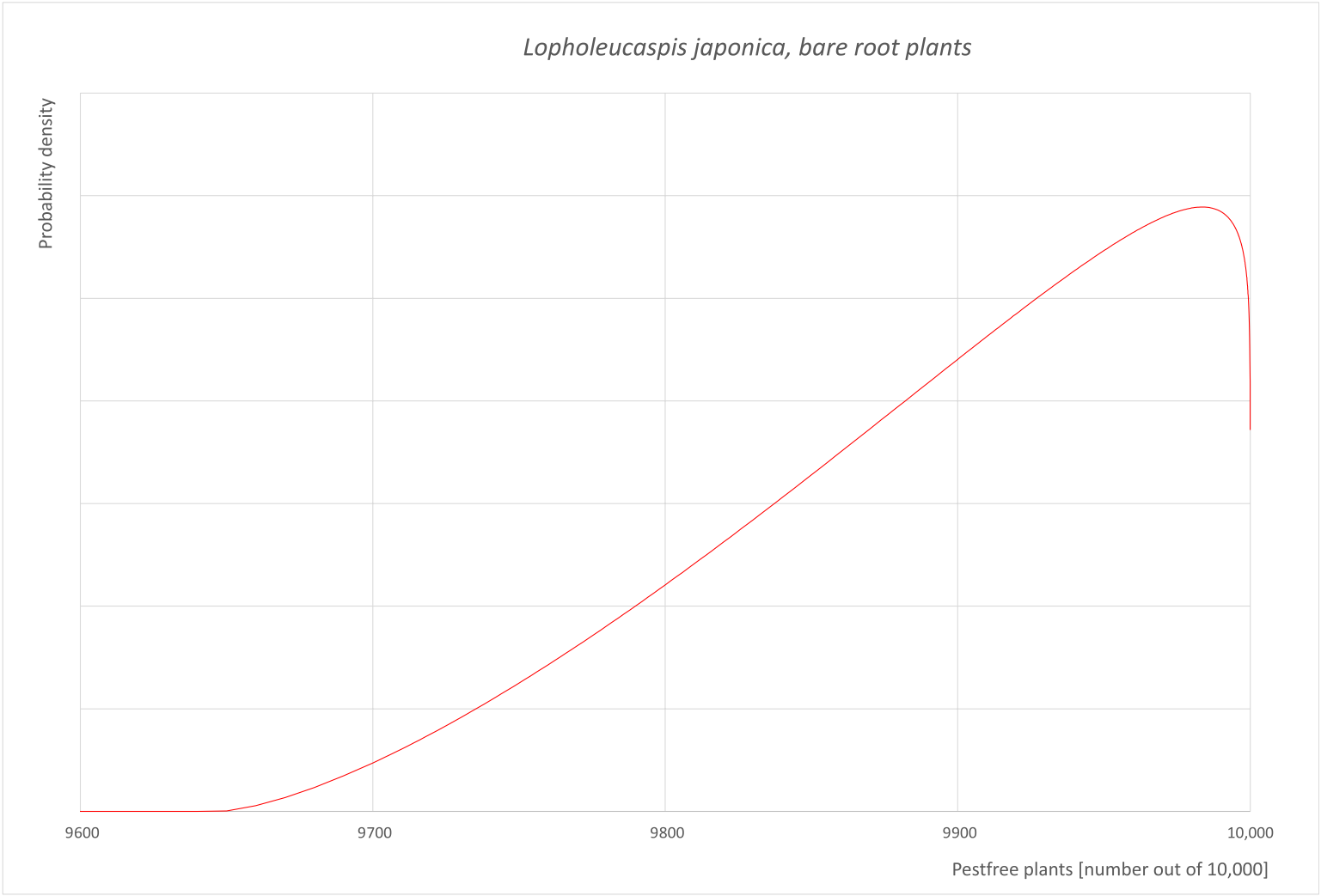

FIGURE A.5 (Continued)

(C)

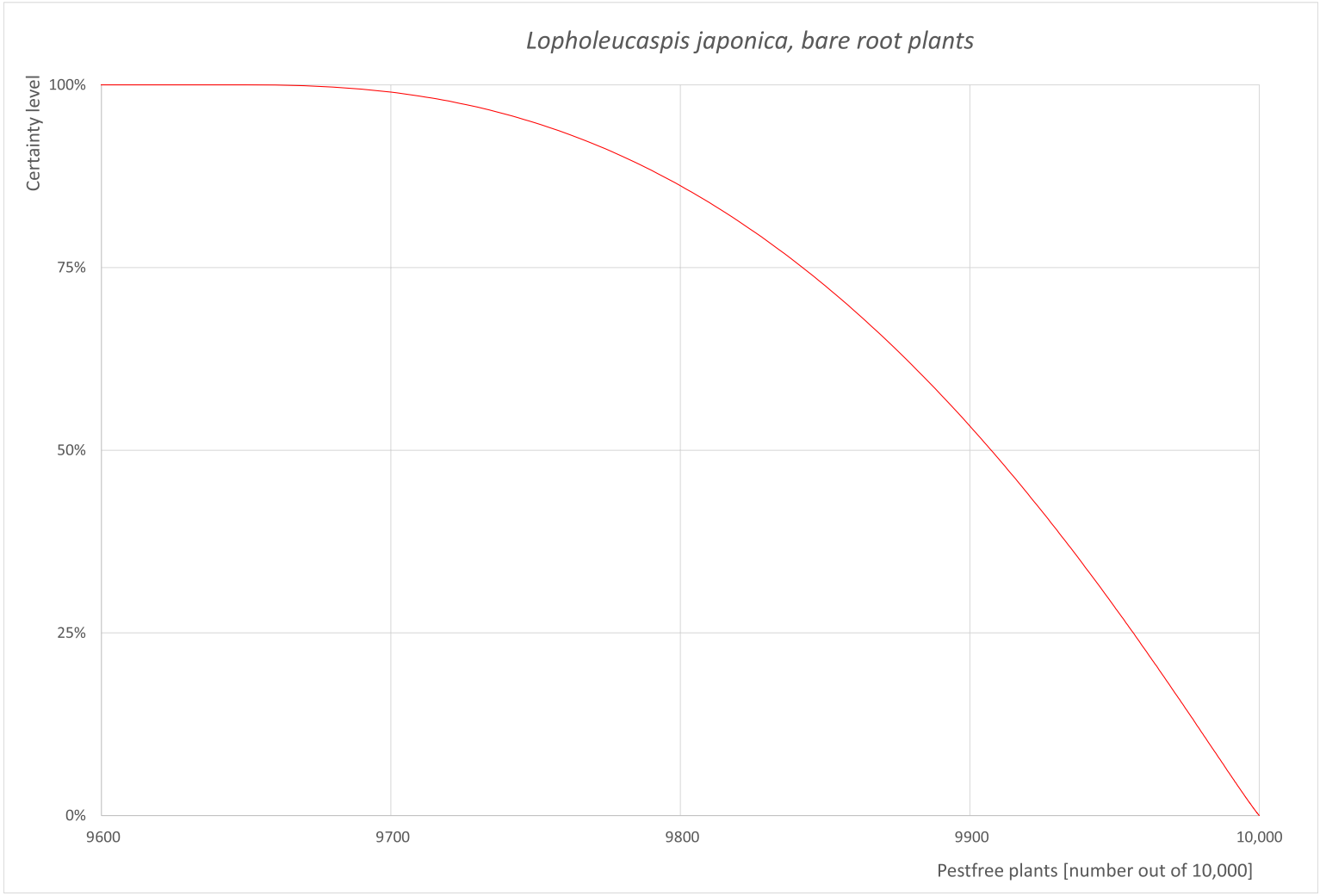

FIGURE A.5 (A) Elicited uncertainty of pest infection per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. = 1 – pest infection proportion expressed as percentage); (C) descending uncertainty distribution function of pest infection per 10,000 plants.

A.3.6 | Overall likelihood of pest freedom for plants in pots (1–2 years old)

A.3.6.1 | Reasoning for a scenario which would lead to a reasonably low number of infected plants in pots (1–2 years old)

The scenario assumes that the pest may be absent from the area surrounding the nursery and that climatic conditions are unsuitable for its establishment. It also considers that, as the pest is regulated as an RNQP in Ukraine, the nursery will implement control measures if it is detected.

A.3.6.2 | Reasoning for a scenario which would lead to a reasonably high number of infected plants in pots (1–2 years old)

The scenario assumes that the nursery is in an area with high pest pressure leading to many plants to be infested. Main hosts can be present in the vicinity of the nursery, and the pest may be widespread in Ukraine as it can be easily overlooked if the population density is low. However, this scenario also assumes that nursery will take measures if the pest is abundant and that the pest is regulated in Ukraine, therefore it will exist awareness about it. Finally, the scenario considers that mother plants are from certified material and the nursery use its own propagation material.

A.3.6.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infected plants in pots (1–2 years old) (Median)

The central scenario assumes that older plants may have higher infestation levels, and the pest could be introduced into the nursery from surrounding infested areas or via plants originating from regions where the pest is already present. However, the scenario also considers that the pest is present in only part of the country, and since it is regulated, it would likely have been detected and controlled if present near the nursery. Therefore, the estimate of the median is shifted towards a low-risk scenario.

A.3.6.4 | Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/ interquartile range)

Limited information on the pathogen's presence across much of Ukraine leads to high uncertainty for infestation rates below the median, while less uncertainty exists for rates above the median due to less favourable climatic conditions in parts of the country, pest regulation as RNQP, likely detection near nursery and the expectation that control measures would be implemented if detected.

A.3.6.5 | Elicitation outcomes of the assessment of the pest freedom for *Lopholeucaspis japonica* on plants in pots (1–2 years old)

The following Tables show the elicited and fitted values for pest infection (Table A.11) and pest freedom (Table A.12).

TABLE A.11 Elicited and fitted values of the uncertainty distribution of pest infestation by *Lopholeucaspis 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	0					29		59		91					169
EKE	2.17	4.48	7.79	13.7	21.0	29.8	38.6	57.5	79.4	92.4	108	125	142	156	169

Note: The EKE results is the BetaGeneral (1.2838, 2.7689, 0, 202) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infected plants the pest freedom was calculated (i.e. = 10,000 – number of infected plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.12.

TABLE A.12 The uncertainty distribution of plants free of *Lopholeucaspis japonica* per 10,000 plants calculated by Table A.11.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9831					9909		9941		9971					10,000
EKE results	9831	9844	9858	9875	9892	9908	9921	9943	9961	9970	9979	9986	9992	9996	9998

Note: The EKE results are the fitted values.

(A)

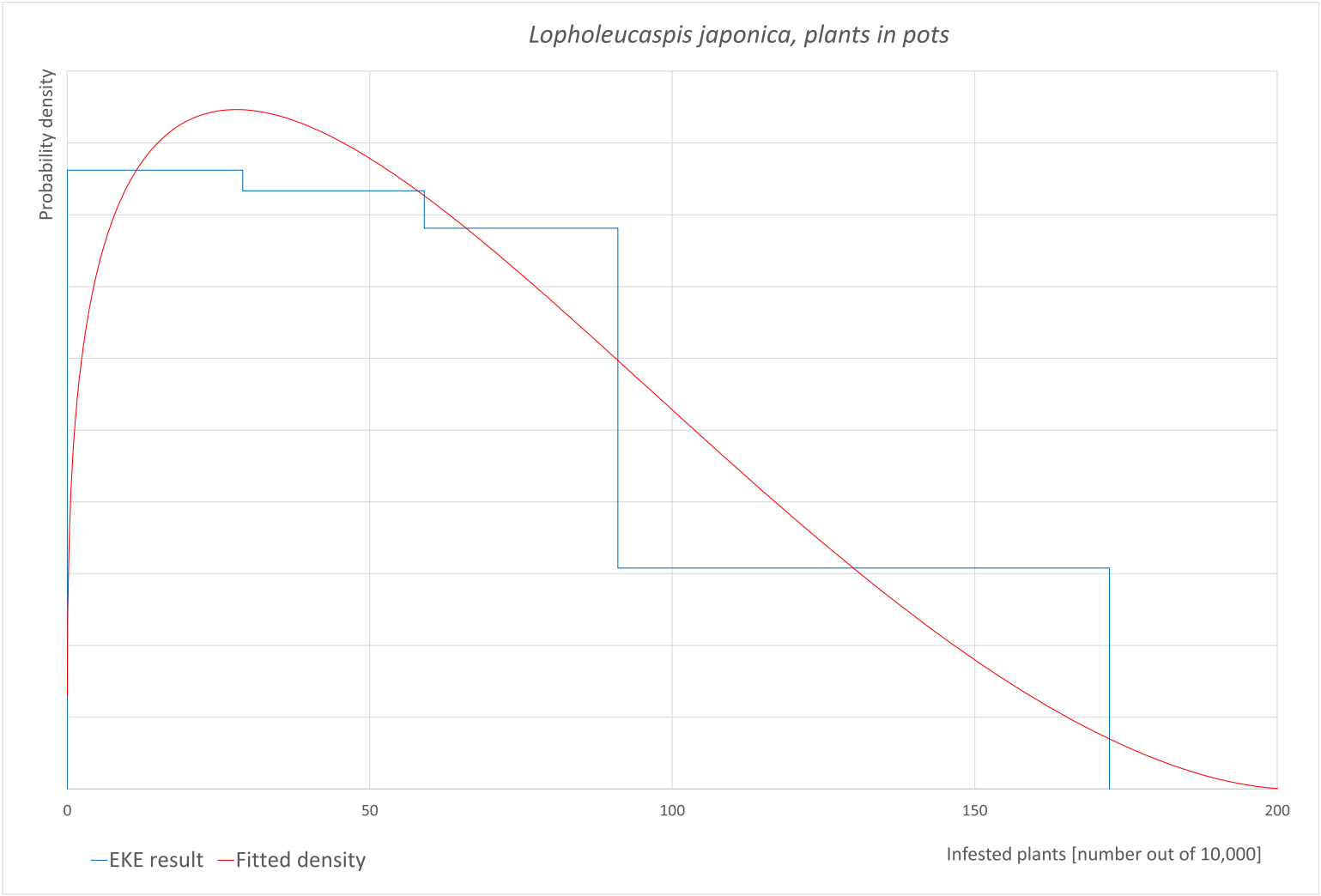

FIGURE A.6 (Continued)

(B)

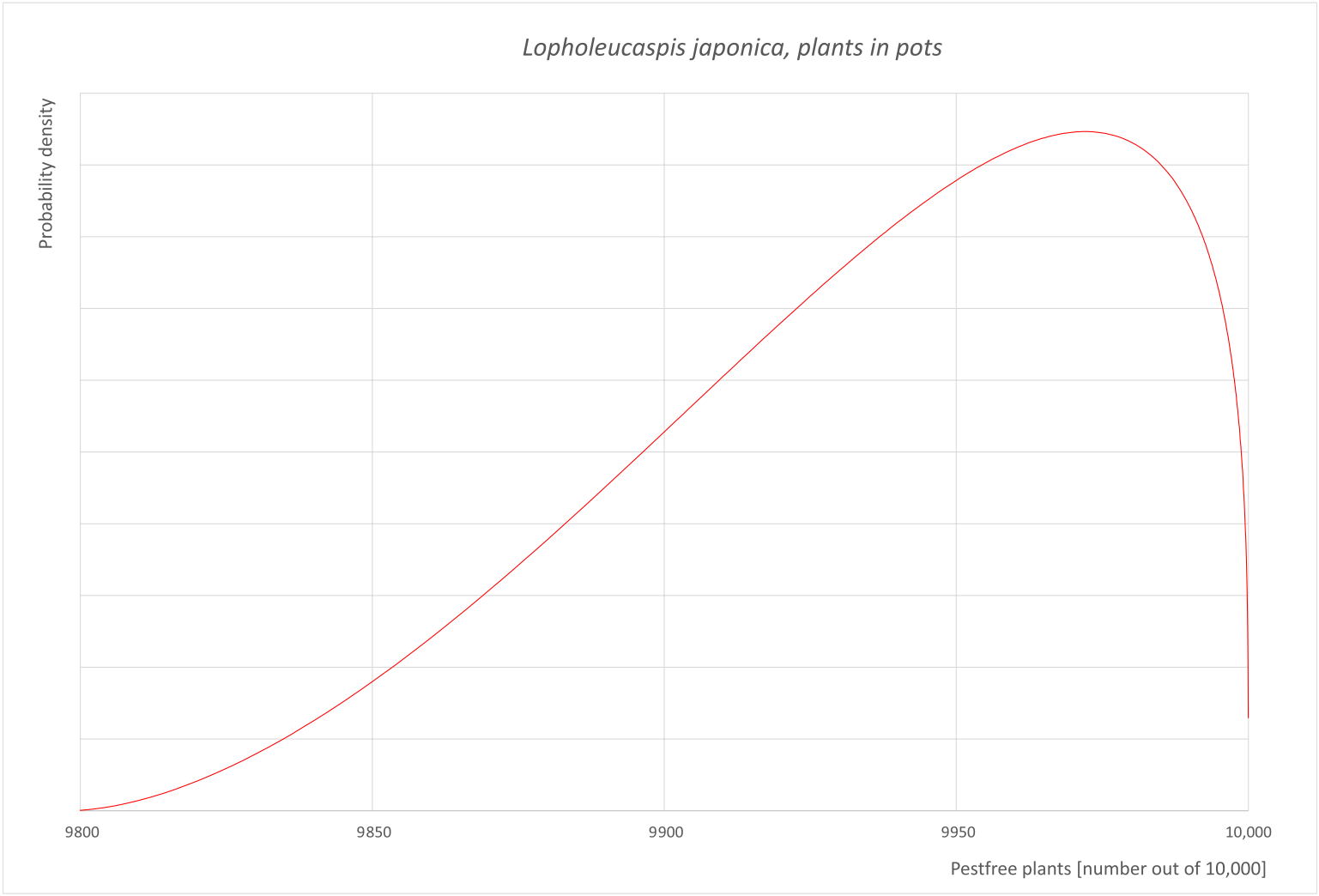

FIGURE A.6 (Continued)

(C)

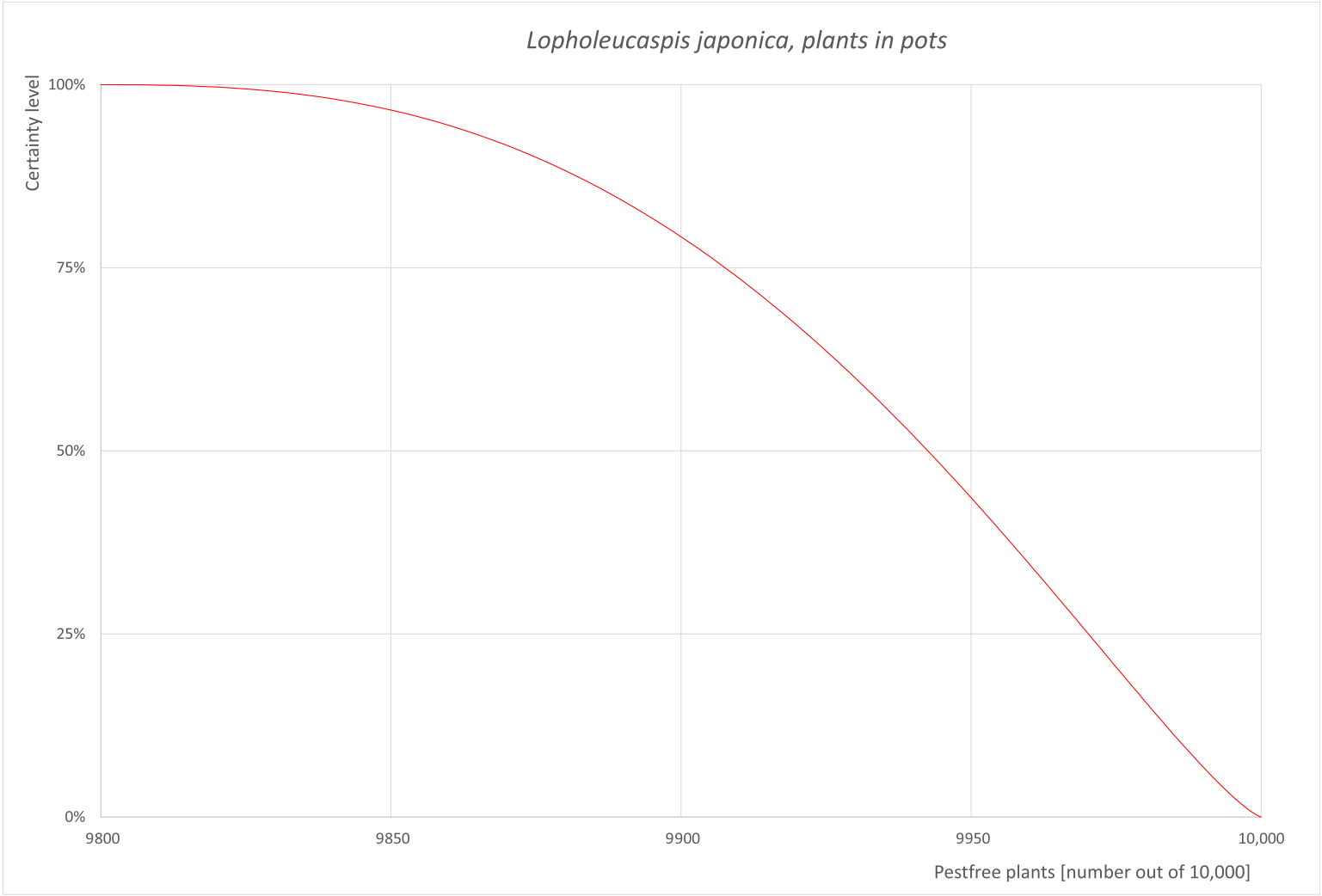

FIGURE A.6 (A) Elicited uncertainty of pest infection per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. = 1 – pest infection proportion expressed as percentage); (C) descending uncertainty distribution function of pest infection per 10,000 plants.

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APPENDIX B

Web of Science All Databases Search String

In the Table B.1, the search string for *Acer griseum* used in Web of Science is reported. Totally, 9 papers were retrieved. Titles and abstracts were screened, and 0 pests were added to the list of pests (see Appendix D).

In the Table B.2, the search string for *Acer platanoides* used in Web of Science is reported. Totally, 391 papers were retrieved. Titles and abstracts were screened, and 24 pests were added to the list of pests (see Appendix D).

In the Table B.3, the search string for *Acer rubrum* used in Web of Science is reported. Totally, 767 papers were retrieved. Titles and abstracts were screened, and 100 pests were added to the list of pests (see Appendix D).

In the Table B.4, the search string for *Acer saccharinum* used in Web of Science is reported. Totally, 237 papers were retrieved. Titles and abstracts were screened, and 15 pests were added to the list of pests (see Appendix D).

In the Table B.5, the search string for *Acer saccharum* used in Web of Science is reported. Totally, 821 papers were retrieved. Titles and abstracts were screened, and 36 pests were added to the list of pests (see Appendix D).

In the Table B.6, the search string for *Acer tataricum* used in Web of Science is reported. Totally, 94 papers were retrieved. Titles and abstracts were screened, and 9 pests were added to the list of pests (see Appendix D).

In the Table B.7, the search string for *Acer tataricum* subsp. *ginnala* used in Web of Science is reported. Totally, 52 papers were retrieved. Titles and abstracts were screened, and 12 pests were added to the list of pests (see Appendix D).

In the Table B.8, the search string for *Acer* × *freemanii* used in Web of Science is reported. Totally, 12 papers were retrieved. Titles and abstracts were screened, and 2 pests were added to the list of pests (see Appendix D).

TABLE B.1 String for *Acer griseum*.

Web of Science All databases	**TOPIC:** "Acer griseum" OR "A. griseum" OR "Acer nikoense var. griseum" OR "Crula grisea" OR "paperbark maple" **AND** **TOPIC:** 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" **NOT** **TOPIC:** "winged seeds" OR metabolites OR *tannins OR climate OR "maple syrup" OR syrup OR mycorrhiz* OR "carbon loss" OR pollut* OR weather OR propert* OR probes OR spectr* OR antioxidant$ OR transformation OR RNA OR DNA OR "Secondary plant metabolite$" OR metabol* OR "Phenolic compounds" OR Quality OR Abiotic OR Storage OR Pollen* OR fertil* OR Mulching OR Nutrient* OR Pruning OR drought OR "human virus" OR "animal disease*" OR "plant extracts" OR immunological OR "purified fraction" OR "traditional medicine" OR medicine OR mammal* OR bird* OR "human disease*" OR biomarker$ OR "health education" OR bat$ OR "seedling$ survival" OR "anthropogenic disturbance" OR "cold resistance" OR "salt stress" OR salinity OR "aCER method" OR "adaptive cognitive emotion regulation" OR nitrogen OR hygien* OR "cognitive function$" OR fossil$ OR *toxicity OR Miocene OR postglacial OR "weed control" OR landscape

TABLE B.2 String for *Acer platanoides*.

Web of Science All databases	**TOPIC:** "Acer platanoides" OR "A. platanoides" OR "Euacer platanoides" OR "Norway maple" OR "plane maple" **AND** **TOPIC:** 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" **NOT** **TOPIC:** "winged seeds" OR metabolites OR *tannins OR climate OR "maple syrup" OR syrup OR mycorrhiz* OR "carbon loss" OR pollut* OR weather OR propert* OR probes OR spectr* OR antioxidant$ OR transformation OR RNA OR DNA OR "Secondary plant metabolite$" OR metabol* OR "Phenolic compounds" OR Quality OR Abiotic OR Storage OR Pollen* OR fertil* OR Mulching OR Nutrient* OR Pruning OR drought OR "human virus" OR "animal disease*" OR "plant extracts" OR immunological OR "purified fraction" OR "traditional medicine" OR medicine OR mammal* OR bird* OR "human disease*" OR biomarker$ OR "health education" OR bat$ OR "seedling$ survival" OR "anthropogenic disturbance" OR "cold resistance" OR "salt stress" OR salinity OR "aCER method" OR "adaptive cognitive emotion regulation" OR nitrogen OR hygien* OR "cognitive function$" OR fossil$ OR *toxicity OR Miocene OR postglacial OR "weed control" OR landscape

(Continued)

NOT

TOPIC: "Acanthococcus aceris" OR "Aceria heteronyx" OR "Aceria macrochela" OR "Aceria macrocheluserinea" OR "Aceria macrorhyncha" OR "Aceria marshalli" OR "Aceria platanoidea" OR "Aceria platanoideus" OR "Aceria pseudoplatanea" OR "Aceria pseudoplatani" OR "Aceria regulus" OR "Acericerus heydenii" OR "Acericerus ribauti" OR "Acleris forsskaleana" OR "Acronicta aceris" OR "Acronicta alni" OR "Acronicta leporina" OR "Acronicta psi" OR "Acronicta rumicis" OR "Aculops acericola" OR "Aculops aceris" OR "Acumyia acericola" OR "Aegosoma scabricorne" OR "Agrilus viridis" OR "Agrochola rupicapra" OR "Alebra albostriella" OR "Alebra wahlbergi" OR "Aleurochiton aceris" OR "Aleurochiton complanatus" OR "Aleurocorticium microsporum" OR "Altenia scriptella" OR "Alternaria tenuis" OR "Amphipyra pyramidea" OR "Amphisphaeria millepunctata" OR "Angustimassarina acerina" OR "Angustimassarina quercicola" OR "Anisandrus dispar" OR "Anisarthron barbipes" OR "Anoplophora chinensis" OR "Anoplophora glabripennis" OR "Anthocoptes transitionalis" OR "Anthocoris nemoralis" OR "Apiognomonia acerina" OR "Apiognomonia errabunda" OR "Apioplagiostoma acerinum" OR "Aplosporella clintonii" OR "Apoda limacodes" OR "Armillaria borealis" OR "Armillaria mellea" OR "Ascochyta pallida" OR "Ascochyta tehonii" OR "Ascochyta velata" OR "Asteromella platanoidis" OR "Asteromella velata" OR "Aureobasidium apocryptum" OR "Automeris io io" OR "Bertia moriformis" OR "Botryosphaeria dothidea" OR "Botrytis cinerea" OR "Bradybatus fallax" OR "Bradybatus kellneri" OR "Bradybatus tomentosus" OR "Bryobia sarothamni" OR "Bucculatrix thoracella" OR "Cacoecimorpha pronubana" OR "Calliteara pudibunda" OR "Caloptilia hemidactylella" OR "Caloptilia homoratella" OR "Caloptilia jurateae" OR "Caloptilia packardella" OR "Caloptilia rufipennella" OR "Caloptilia semifascia" OR "Calycellina lachnobrachya" OR "Cameraria ohridella" OR "Campyloneura virgula" OR "Carpatolechia fugitivella" OR "Cecidophyes collegiatus" OR "Cecidophyes gymnaspis" OR "Cecidophyopsis pseudoplatani" OR "Centrospora acerina" OR "Cerambyx scopolii" OR "Cercophora caudata" OR "Cerrena unicolor" OR "Chaetocnema confinis" OR "Chlorophorus varius" OR "Chondrostereum purpureum" OR "Choristoneura diversana" OR "Chrysobothris femorata" OR "Chrysobothris mali" OR "Chyliza leptogaster" OR "Cicadella viridis" OR "Cladobotryum varium" OR "Cladosporium cladosporioides" OR "Cladosporium epiphyllum" OR "Cladosporium epiphyllum var. acerinum" OR "Cladosporium fumago" OR "Cladosporium herbarum" OR "Cladosporium licheniphilum" OR "Cladosporium macrocarpum" OR "Climacodon septentrionalis" OR "Clypeosphaeria mamillana" OR "Cnephasia asseclana" OR "Cnidocampa flavescens" OR "Coleophora badiipennella" OR "Colletotrichum dematium" OR "Colletotrichum salicis" OR "Colocasia coryli" OR "Colotois pennaria" OR "Comstockaspis perniciosa" OR "Coniochaeta subcorticalis" OR "Coniothyrium fuckelii" OR "Coptophylla gymnaspis" OR "Coptophylla pseudoplatani" OR "Corthylus punctatissimus" OR "Coryneum pulchrum" OR "Corythucha arcuata" OR "Cosmia trapezina" OR "Cossus cossus" OR "Crassochaeta fusispora" OR "Cristulariella depraedans" OR "Cristulariella depraedens" OR "Cristulariella moricola" OR "Cristulariella pyramidalis" OR "Cryptostroma corticale" OR "Cydia inquinatana" OR "Cyrtoclytus capra" OR "Cytospora achari" OR "Cytospora ambiens" OR "Cytospora ampulliformis" OR "Cytospora ceratosperma" OR "Cytospora chrysosperma" OR "Cytospora intermedia" OR "Cytospora leucosperma" OR "Cytospora pseudoplatani" OR "Daedalea unicolor" OR "Daldinia fissa" OR "Daldinia loculatoides" OR "Dendrothele microspora" OR "Deraeocoris flavilinea" OR "Diaporthe pustulata" OR "Diaspidiotus ostreaeformis" OR "Diatrype decorticata" OR "Diatrype disciformis" OR "Diatrype flavovirens" OR "Diatrype polycocca" OR "Diatrype spilomea" OR "Diatrype subaffixa var. rappazii" OR "Didymosporina aceris" OR "Diplodia atrata" OR "Diplodia sarmentorum" OR "Discosia artocreas" OR "Discosia diedickeana" OR "Discosia ludwigii" OR "Discula campestris" OR "Dothiorella sarmentorum" OR "Drepanaphis acerifoliae" OR "Drepanosiphum aceris" OR "Drepanosiphum platanoidis" OR "Drepanosiphum acerinum" OR "Drepanosiphum platanoidis" OR "Drisina glutinosa" OR "Dwayaangam cornuta" OR "Ectoedemia sericopeza" OR "Edwardsiana frustrator" OR "Edwardsiana nigriloba" OR "Ennomos quercinaria" OR "Eotetranychus aceri" OR "Eotetranychus carpini" OR "Eotetranychus pruni" OR "Eotetranychus spectabilis" OR "Eotetranychus uncatus" OR "Epicoccum nigrum" OR "Epidiaspis leperii" OR "Erannis defoliaria" OR "Eriophyes heteronyx" OR "Eriophyes moniezi" OR "Etainia sericopeza" OR "Eulecanium tiliae" OR "Eupithecia inturbata" OR "Eupsilia transversa" OR "Eutypa lata" OR "Eutypa lata var. aceri" OR "Eutypa lejoplaca" OR "Eutypa ludibunda" OR "Eutypa maura" OR "Eutypella parasitica" OR "Flammocladiella aceris" OR "Fomes connatus" OR "Fomes igniarius" OR "Fumago vagans" OR "Fusarium solani" OR "Fusidium griseum" OR "Ganoderma applanatum" OR "Ganoderma lucidum" OR "Ganoderma resinaceum" OR "Gelechia sestertiella" OR "Geotrichum candidum" OR "Gibberella maxima" OR "Gloeosporium acericola" OR "Gloeosporium apocryptum" OR "Gloeosporium saccharinum" OR "Glomerella cingulata" OR "Gnomonia cerastis" OR "Halyomorpha halys" OR "Helicogloea sebacea" OR "Helicosporium virescens" OR "Heliococcus stachyos" OR "Heliothrips haemorrhoidalis" OR "Heterarthrus aceris" OR "Heterarthrus flavicollis" OR "Heterobasidion annosum" OR "Heterogenea asella" OR "Hinatara recta" OR "Hyalophora cecropia" OR "Hydrelia flammeolaria" OR "Hylesinus varius" OR "Hymenochaete fuliginosa" OR "Hyphantria cunea" OR "Hypocrea gelatinosa" OR "Hypothenemus dissimilis" OR "Hypoxylon fuscum" OR "Hypoxylon howeanum" OR "Hypoxylon rubiginosum" OR "Incurvaria oehlmanniella" OR "Inonotus dryadeus" OR "Isa textula" OR "Itame pustularia" OR "Japananus hyalinus" OR "Kleidocerys resedae" OR "Kretzschmaria deusta" OR "Lanzia luteovirescens" OR "Leioderes kollari" OR "Leiopus linnei" OR "Leiopus nebulosus" OR "Lepidosaphes ulmi" OR "Leucoptera aceris" OR "Longidorus elongatus" OR "Longidorus euonymus" OR "Longidorus helveticus" OR "Lophiostoma nucula" OR "Lophiostoma quadrinucleatum" OR "Lycorma delicatula" OR "Lymantor aceris" OR "Lymantor aceris aceris" OR "Lymantor coryli" OR "Lymantria dispar" OR "Lymantria dispar asiatica" OR "Lymantria monacha" OR "Marssonina truncatula" OR "Massalongia aceris" OR "Massaria inquinans" OR "Massaria macra" OR "Massaria platanoidea" OR "Massaria vomitoria" OR "Massarina macra" OR "Massarina neesii" OR "Melanaspis inopinata" OR "Melanconiella appendiculata" OR "Melanconis sudans" OR "Melanopsamma pomiformis" OR "Melasmia acerina" OR "Melasmia punctata" OR "Meloidogyne chitwoodi" OR "Meloidogyne ovalis" OR "Mesolecanium nigrofasciatum" OR "Mesosa curculionoides" OR "Metcalfa pruinosa" OR "Microdiplodia subtecta" OR "Mimeuria ulmiphila" OR "Mormo maura" OR "Mycocentrospora acerina" OR "Mycosphaerella maculiformis" OR "Mycosphaerella punctiformis" OR "Naevia pediculorum" OR "Naeviopsis acericola" OR "Nectria cinnabarina" OR "Nectria coccinea" OR "Nemania chestersii" OR "Nemania serpens" OR "Neochionaspis kirgisica" OR "Neopulvinaria innumerabilis" OR "Neopulvinaria innumerabilis innumerabilis" OR "Neotegonotus fastigatus" OR "Nitschkia collapsa" OR "Nitschkia parasitans" OR "Ochrolechia turneri" OR "Oedemium atrum" OR "Operophtera brumata" OR "Ophiostoma quercus" OR "Orgyia antiqua" OR "Orgyia leucostigma" OR "Orius minutus" OR "Orthosia cerasi" OR "Ossiannilssonola callosa" OR "Otiorhynchus niger" OR "Otthia aceris" OR "Otthia spiraeae" OR "Otthia winteri" OR "Oxyporus populinus" OR "Pammene regiana" OR "Pamphilius aurantiacus" OR "Pamphilius ignymontiensis" OR "Paralongidorus maximus" OR "Parlatoria oleae" OR "Parornix carpinella" OR "Parornix eppelsheimi" OR "Parthenolecanium corni" OR "Pediaspis aceris"

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	OR "Pedostrangalia revestita" OR "Penicillium funiculosum" OR "Peniophora incarnata" OR "Peniophora nuda" OR "Periphyllus acericola" OR "Periphyllus aceris" OR "Periphyllus californiensis" OR "Periphyllus coracinus" OR "Periphyllus kuwanaii" OR "Periphyllus lyropictus" OR "Periphyllus testudinaceus" OR "Periphyllus viridis" OR "Periphyllus xanthomelas" OR "Periphyllus aceris" OR "Periphyllus californiensis" OR "Pestalotia adusta" OR "Petrakia deviata" OR "Pezicula eucrita" OR "Phaeophyscia orbicularis" OR "Phalera bucephala" OR "Phellinus alni" OR "Phenacoccus acericola" OR "Phenacoccus aceris" OR "Philaenus spumarius" OR "Phloeospora platanoidis" OR "Phoma platanoidis" OR "Phoma samarorum" OR "Phomopsis acerina" OR "Phyllactinia guttata" OR "Phyllactinia marissalii" OR "Phyllactinia suffulta" OR "Phyllobius arborator" OR "Phyllobius pilicornis" OR "Phyllonorycter joannisi" OR "Phyllonorycter platanoidella" OR "Phyllonorycter sylvella" OR "Phyllonorycter trinotella" OR "Phyllosticta acerina" OR "Phyllosticta aceris" OR "Phyllosticta campestris" OR "Phyllosticta minima" OR "Phyllosticta tambowiensis" OR "Physalospora gregaria" OR "Physatocheila dumetorum" OR "Phytocoris tiliae" OR "Phytophthora cactorum" OR "Phytophthora cambivora" OR "Phytophthora gonapodyides" OR "Phytophthora plurivora" OR "Plagiostoma inclinatum" OR "Pleospora platanoidis" OR "Pleospora pseudoplatani" OR "Pleuroceras pseudoplatani" OR "Poecilocampa populi" OR "Polyporus badius" OR "Polyporus brumalis" OR "Polyporus leptocephalus" OR "Polyporus melanopus" OR "Polyporus squamosus" OR "Popillia japonica" OR "Pratylenchus crenatus" OR "Pratylenchus fallax" OR "Pratylenchus penetrans" OR "Pratylenchus vulnus" OR "Prionus coriarius" OR "Prosthecium appendiculatum" OR "Prosthecium innesii" OR "Prosthecium platanoidis" OR "Proteoteras aesculana" OR "Psallus perrisi" OR "Psallus variabilis" OR "Psallus wagneri" OR "Ptilinus pectinicornis" OR "Ptilodon capucina" OR "Ptilophora plumigera" OR "Ptycholomoides aeriferana" OR "Pulvinaria hydrangeae" OR "Pulvinaria kuwacola" OR "Pulvinaria regalis" OR "Pyrenopeziza petiolaris" OR "Rhamnusium bicolor" OR "Rhinocola aceris" OR "Rhyncaphytoptus amplus" OR "Rhyncaphytoptus magnificus" OR "Rhyncaphytoptus platani" OR "Rhytisma acerinum" OR "Rhytisma punctatum" OR "Roeslerstammia erxlebella" OR "Ropalopus macropus" OR "Rosalia alpina" OR "Rosellinia corticium" OR "Saperda scalaris" OR "Sawadaea bicornis" OR "Sawadaea tulasnei" OR "Sawadaia tulasnei" OR "Schevtchenkella variabilis" OR "Sclerotiopsis protracta" OR "Scolytus koenigi" OR "Scolytus laevis" OR "Scolytus rugulosus" OR "Scopula nigropunctata" OR "Selenia dentaria" OR "Septomyxa tulasnei" OR "Septoria acerina" OR "Septoria aceris" OR "Septoria incondita" OR "Septoria pseudoplatani" OR "Shevtchenkella dentatus" OR "Shevtchenkella obtusa" OR "Shevtchenkella obtusus" OR "Shevtchenkella serrata" OR "Shevtchenkella trilobis" OR "Sphaeropsis clintonii" OR "Sphaerulina aceris" OR "Spilosticta aceris" OR "Splanchnonema pupula" OR "Spongipellis spumeus" OR "Sporothrix prolifera" OR "Steccherinum septentrionale" OR "Stegonsporium pyriforme" OR "Stereum purpureum" OR "Stigmella aceris" OR "Stigmella speciosa" OR "Stomaphis graffii" OR "Stomaphis quercus" OR "Synanthedon spuleri" OR "Taeniothrips inconsequens" OR "Taphrina acericola" OR "Taphrina acerina" OR "Taphrina cerasi" OR "Tegonotus serratus" OR "Teichospora ampullacea" OR "Tenthredo vespa" OR "Tetranychus urticae" OR "Thrips minutissimus" OR "Thyridopteryx ephemeraeformis" OR "Trametes versicolor" OR "Tremex fuscicornis" OR "Trichoferus campestris" OR "Trichothecium roseum" OR "Trypodendron signatum" OR "Tyromyces spumeus" OR "Uncinula aceris" OR "Uncinula bicornis" OR "Uncinula tulasnei" OR "Valsa ambiens" OR "Valsa decorticans" OR "Venturia aceris" OR "Verticillium albo-atrum" OR "Verticillium dahliae" OR "Xiphinema americanum" OR "Xiphinema dentatum" OR "Xylaria hypoxylon" OR "Xylaria longipes" OR "Xylaria mali" OR "Xyleborinus attenuatus" OR "Xyleborinus saxesenii" OR "Xyleborus dispar" OR "Xyleborus saxeseni" OR "Xylella fastidiosa" OR "Xylella fastidiosa subsp. multiplex" OR "Xylena vetusta" OR "Xylosandrus germanus" OR "Xyloterinus politus" OR "Xylotrechus aceris" OR "Ypsolopha sequella" OR "Zeuzera pyrina" OR "Zyginella pulchra" OR "Zythia aceris"

TABLE B.3 String for *Acer rubrum*.

Web of Science All databases	**TOPIC:** "Acer rubrum" OR "A. rubrum" OR "Acer ginnala" OR "Rufacer rubrum" OR "Acer carolinianum" OR "Acer coccineum" OR "Acer drummondii" OR "Acer fulgens" OR "Acer glaucum" OR "Acer hypoleucum" OR "Acer microphyllum" OR "Acer sanguineum" OR "Acer semiorbiculatum" OR "Acer splendens" OR "Acer stenocarpum" OR "Acer tomentosum" OR "Acer wagneri" OR "Rufacer carolinianum" OR "Rufacer drummondii" OR "Scarlet Maple" OR "Canadian maple" OR "soft maple" OR "swamp maple" OR "red maple" **AND** **TOPIC:** 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" **NOT** **TOPIC:** "winged seeds" OR metabolites OR *tannins OR climate OR "maple syrup" OR syrup OR mycorrhiz* OR "carbon loss" OR pollut* OR weather OR propert* OR probes OR spectr* OR antioxidant$ OR transformation OR RNA OR DNA OR "Secondary plant metabolite$" OR metabol* OR "Phenolic compounds" OR Quality OR Abiotic OR Storage OR Pollen* OR fertil* OR Mulching OR Nutrient* OR Pruning OR drought OR "human virus" OR "animal disease*" OR "plant extracts" OR immunological OR "purified fraction" OR "traditional medicine" OR medicine OR mammal* OR bird* OR "human disease*" OR biomarker$ OR "health education" OR bat$ OR "seedling$ survival" OR "anthropogenic disturbance" OR "cold resistance" OR "salt stress" OR salinity OR "aCER method" OR "adaptive cognitive emotion regulation" OR nitrogen OR hygien* OR "cognitive function$" OR fossil$ OR *toxicity OR Miocene OR postglacial OR "weed control" OR landscape

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NOT

TOPIC: "Acanthophysium oakesii" OR "Acarosporina microspora" OR "Acarosporium americanum" OR "Acarosporium sympodiale" OR "Aceria cephalonea" OR "Aceria cephaloneus" OR "Aceria elongatus" OR "Aceria fraxiniflora" OR "Aceria macrocheluserinea" OR "Aceria major" OR "Aceria monspessulerinea" OR "Aceria monspessulerineus" OR "Acericecis ocellaris" OR "Acleris chalybeana" OR "Acrodictys atroapicula" OR "Acronicta americana" OR "Acronicta retardata" OR "Acrospeira mirabilis" OR "Actias luna" OR "Actinopelte dryina" OR "Aculodes cephaloneus" OR "Aculus minutissimus" OR "Aculus quinquilobus" OR "Aegomorphus modestus" OR "Aegoschema modesta" OR "Agaricites melleus" OR "Agaricus melleus f. luteoannulata" OR "Aleurocorticium microsporum" OR "Allophlebia ludoviciana" OR "Alsophila pometaria" OR "Ambarignomonia petiolorum" OR "Ambrosiella xylebori" OR "Amniscus macula" OR "Amphicerus bicaudatus" OR "Amphipyra pyramidoides" OR "Anacamptodes ephyraria" OR "Anavitrinella pampinaria" OR "Anisandrus maiche" OR "Anisota oslari" OR "Anisota rubicunda" OR "Annoplodera pubera" OR "Annulohypoxylon truncatum" OR "Anoplophora chinensis" OR "Anoplophora glabripennis" OR "Antaeotricha leucillana" OR "Antheraea polyphemus" OR "Anthocoptes transitionalis" OR "Antrodia albida" OR "Antrodia crustulina" OR "Antrodiella pachycheiles" OR "Apiosporopsis carpinea" OR "Aplosporella clintonii" OR "Archips argyrospila-complex" OR "Archips fuscocupreanus" OR "Archips rosana" OR "Armillaria calvescens" OR "Armillaria gallica" OR "Armillaria gemina" OR "Armillaria mellea" OR "Armillaria ostoyae" OR "Armillaria sinapina" OR "Armillaria tabescens" OR "Armillariella ostoyae" OR "Artacris cephaloneus" OR "Asteromella pruni-mahaleb" OR "Astylopsis macula" OR "Atheliachaete sanguinea" OR "Aureobasidium apocryptum" OR "Automeris io" OR "Baltazaria galactina" OR "Belonolaimus longicaudatus" OR "Besma endropiaria" OR "Biscogniauxia atropunctata" OR "Biscogniauxia mediterranea" OR "Biston betularia cognataria" OR "Bjerkandera adusta" OR "Bjerkandera fumosa" OR "Boisea trivittata" OR "Botryodiplodia acerina" OR "Botryosphaeria dothidea" OR "Byssomerulius corium" OR "Cacoecimorpha pronubana" OR "Cacumisporium capitulatum" OR "Cadophora melinii" OR "Calcipostia guttulata" OR "Caloptilia aceriella" OR "Caloptilia bimaculatella" OR "Caloptilia speciosella" OR "Caloptilia umbratella" OR "Cameraria aceriella" OR "Cameraria saccharella" OR "Camillea tinctor" OR "Campaea perlata" OR "Catastega aceriella" OR "Catocala cerogama" OR "Cecidomyia ocellaris" OR "Cecidophyes naulti" OR "Cenangium episphaerium" OR "Cenangium griseum" OR "Ceratocystis piceae" OR "Cercophora sulphurella" OR "Cercospora negundinis" OR "Cerioporus leptocephalus" OR "Cerioporus scutellatus" OR "Ceriporia purpurea" OR "Cerococcus koebelei" OR "Cerococcus parrotti" OR "Cerrena unicolor" OR "Ceuthospora concava" OR "Cheimonophyllum candidissimum" OR "Chionaspis acericola" OR "Chondrostereum purpureum" OR "Choristoneura fractivittana" OR "Choristoneura parallela" OR "Choristoneura rosaceana" OR "Chrysobothris femorata" OR "Chrysobothris mali" OR "Ciboria acerina" OR "Cingilia catenaria" OR "Cladosporium humile" OR "Clepsis persicana" OR "Climacodon septentrionalis" OR "Clonostachys rosea" OR "Cnestus mutilatus" OR "Coleophora alniella" OR "Colletotrichum aenigma" OR "Colocasia flavicornis" OR "Comatricha suksdorfii" OR "Conferticium karstenii" OR "Coniosporium peziza" OR "Coniothyrium negundinis" OR "Coptotermes formosanus" OR "Coriolopsis gallica" OR "Coriolus hirsutus" OR "Coriolus pubescens" OR "Coriolus versicolor" OR "Corthylus columbianus" OR "Corthylus punctatissimus" OR "Corticium ochroleucum var. resupinatum" OR "Corticium portentosum" OR "Corticium roseocarneum" OR "Corticium roseum" OR "Corynespora laevistipitata" OR "Crepidotus applanatus" OR "Crepidotus epibryus" OR "Crepidotus herbarum" OR "Cristulariella depraedans" OR "Cristulariella moricola" OR "Crocigrapha normani" OR "Cryphonectria parasitica" OR "Cryptococcus williamsi" OR "Cryptodiaporthe acerina" OR "Cryptodiaporthe myinda" OR "Cryptodiaporthe petiolophila" OR "Cryptostroma corticale" OR "Cucurbitaria echinata" OR "Curvularia sociata" OR "Cylindrosporium saccharinum" OR "Cyrtepistomus castaneus" OR "Cystostereum murraii" OR "Cystostereum murrayi" OR "Cytospora annulata" OR "Cytospora ceratosperma" OR "Cytospora chrysosperma" OR "Cytospora exasperans" OR "Cytospora leucosperma" OR "Cytospora populina" OR "Dactylaria parvispora" OR "Daedalea confragosa" OR "Daedalea unicolor" OR "Daedaleopsis confragosa" OR "Dafa formosella" OR "Daldinia childiae" OR "Daldinia concentrica" OR "Daldinia vernicosa" OR "Dasineura communis" OR "Dasineura rileyana" OR "Dasychira plagiata" OR "Dasyscyphus acerinus" OR "Datana ministra" OR "Datronia mollis" OR "Dendrophora erumpens" OR "Dendrophora versiformis" OR "Dendrothele candida" OR "Dendrothele griseocana" OR "Dendrothele microspora" OR "Depazea brunnea" OR "Dermatea carnea" OR "Dermatea simillima" OR "Dermea acerina" OR "Desarmillaria tabescens" OR "Diaporthe fallaciosa" OR "Diaporthella sphendamnina" OR "Diaspidiotus liquidambaris" OR "Diatrype asterostoma" OR "Diatrype macounii" OR "Diatrype platystoma" OR "Diatrype stigma" OR "Diatrypella annulans" OR "Diatrypella favacea" OR "Diatrypella quercina" OR "Diatrypella subfulva" OR "Dicarpella dryina" OR "Dichomera juglandis" OR "Dichostereum effuscatum" OR "Diplodia seriata" OR "Diplodina acerina" OR "Diplomitoporus crustulinus" OR "Discohainesia oenotherae" OR "Discula campestris" OR "Dolichodorus grandaspicatus" OR "Drepanaphis acerifoliae" OR "Drepanaphis carolinensis" OR "Drepanaphis knowltoni" OR "Drepanaphis nigricans" OR "Drepanaphis parva" OR "Drepanaphis parvus" OR "Drepanaphis saccharini" OR "Drepanaphis tissoti" OR "Drepanosiphum platanoidis" OR "Drepanosiphum iranicum" OR "Drephanaphis sabrinae" OR "Dryocampa rubicunda" OR "Dynaspidiotus abietis" OR "Eacles imperialis" OR "Ectropis crepuscularia" OR "Elaphidion mucronatum" OR "Elaphidionoides villosus" OR "Empoasca fabae" OR "Endophragmiella subolivacea" OR "Engizostoma rugiellum" OR "Ennomos magnaria" OR "Ennomos subsignaria" OR "Entoleuca mammata" OR "Eotetranychus aceri" OR "Eotetranychus coryli" OR "Eotetranychus pruni" OR "Epinotia aceriella" OR "Episimus tyrius" OR "Erannis tiliaria" OR "Erinellina miniopsis" OR "Eriophyes fraxiniflora" OR "Eriophyes macrocheluserineus" OR "Erythricium salmonicolor" OR "Euderces picipes picipes" OR "Eupsilia sidus" OR "Eupsilia tristigmata" OR "Eutrapela clemataria" OR "Eutypella corynostoma" OR "Eutypella fraxinicola" OR "Eutypella parasitica" OR "Eutypella rugiella" OR "Eutypella scoparia" OR "Exosporium sociatum" OR "Fabisporus sanguineus" OR "Favolus alveolaris" OR "Favolus alveolarius" OR "Fomes applanatus" OR "Fomes conchatus" OR "Fomes connatus" OR "Fomes fasciatus" OR "Fomes fomentarius" OR "Fomes fraxinophilus" OR "Fomes igniarius" OR "Fomes marmoratus" OR "Fomes pinicola" OR "Fomes scutellatus" OR "Fomes subroseus" OR "Fomitopsis malicola" OR "Fomitopsis pinicola" OR "Fusarium incarnatum" OR "Fusarium oligoseptatum" OR "Fusarium semitectum" OR "Fuscoporia ferrea" OR "Fuscoporia ferruginosa" OR "Fuscoporia gilva" OR "Fusicladium humile" OR "Fusicladosporium humile" OR "Ganoderma applanatum" OR "Ganoderma curtisii" OR "Ganoderma lucidum" OR "Ganoderma resinaceum" OR "Ganoderma sessile" OR "Gliocladium roseum" OR "Globifomes graveolens" OR "Gloeocystidiellum karstenii" OR "Gloeophyllum trabeum" OR "Gloeoporus dichrous" OR "Gloeosporium aceris" OR "Gloeosporium apocryptum" OR "Gloeosporium decolorans" OR "Glycobius speciosus" OR "Glyphium corrugatum" OR "Gnomonia acerophila" OR "Gnomonia petiolorum" OR "Gnomonia tenella" OR "Gnomoniella tenella" OR "Gorgoniceps iowensis" OR "Granulobasidium vellereum" OR "Graphisurus fasciatus" OR "Graphostroma platystomum" OR "Grovesinia

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moricola" OR "Guignardia endophyllicola" OR "Haematomma pustulatum" OR "Haematostereum rugosum" OR "Halyomorpha halys" OR "Halysidota tessellaris" OR "Hapalopilus nidulans" OR "Hapalopilus rutilans" OR "Helicoma proliferens" OR "Helicosporium auratum" OR "Helicotylenchus dihystera" OR "Helminthosporium subolivaceum" OR "Hemileuca nevadensis-complex" OR "Hendersonia collapsa" OR "Hericium americanum" OR "Hericium coralloides" OR "Hericium ramosum" OR "Herpetogramma pertextalis" OR "Herpotrichia mutabilis" OR "Herpotrichia pezizula" OR "Heterobasidion annosum" OR "Heterocampa biundata" OR "Heterocampa guttivitta" OR "Heterodera zeae" OR "Homalodisca vitripennis" OR "Hoplolaimus galeatus" OR "Hyalophora cecropia" OR "Hydnochaete olivacea" OR "Hydnoporia corrugata" OR "Hydnoporia olivacea" OR "Hydnoporia tabacina" OR "Hymenochaete agglutinans" OR "Hymenochaete corrugata" OR "Hymenochaete tabacina" OR "Hypagyrtis piniata" OR "Hypagyrtis unipunctata" OR "Hypena baltimoralis" OR "Hyphantria cunea" OR "Hyphoderma heterocystidiatum" OR "Hyphoderma mutatum" OR "Hyphodontia crustosa" OR "Hyphodontia spathulata" OR "Hypochnicium vellereum" OR "Hypochnus botryoides" OR "Hypocrea citrina" OR "Hypocrea lenta" OR "Hypothenemus atomus" OR "Hypothenemus dissimilis" OR "Hypothenemus interstitialis" OR "Hypoxylon albocinctum" OR "Hypoxylon atropunctatum" OR "Hypoxylon cohaerens" OR "Hypoxylon crocopeplum" OR "Hypoxylon deustum" OR "Hypoxylon fragiforme" OR "Hypoxylon fuscopurpureum" OR "Hypoxylon fuscum" OR "Hypoxylon howeianum" OR "Hypoxylon hypophlaeum" OR "Hypoxylon jecorinum" OR "Hypoxylon mammatum" OR "Hypoxylon mediterraneum" OR "Hypoxylon morsei" OR "Hypoxylon rubiginosum" OR "Hypoxylon serpens" OR "Hypoxylon tinctor" OR "Hypoxylon truncatum" OR "Hypoxylon howeanum" OR "Hypsizygus elongatipes" OR "Hypsizygus ulmarius" OR "Hysterographium flexuosum" OR "Inonotus cuticularis" OR "Inonotus glomeratus" OR "Inonotus hispidus" OR "Inonotus obliquus" OR "Irpex lacteus" OR "Irpex latemarginatus" OR "Itame pustularia" OR "Jackrogersella cohaerens" OR "Jattaea echinella" OR "Jumillera hypophlaea" OR "Junghuhnia nitida" OR "Kirschsteiniothelia recessa" OR "Kretzschmaria deusta" OR "Laestadia brunnea" OR "Laestadia glaucescens" OR "Laeticorticium roseum" OR "Laetiporus sulphureus" OR "Lambdina fiscellaria" OR "Laxitextum bicolor" OR "Lemonniera aquatica" OR "Lemonniera filiforme" OR "Lemonniera filiformis" OR "Lentinellus cochleatus" OR "Lentinellus micheneri" OR "Lentinellus omphalodes" OR "Lentinellus ursinus" OR "Lentinus arcularius" OR "Lentinus brumalis" OR "Lentinus levis" OR "Lentinus strigosus" OR "Lenzites betulina" OR "Lenzites betulinus" OR "Lepidosaphes ulmi" OR "Lepra pustulata" OR "Leptocoris trivittatus" OR "Leptostylus transversus transversus" OR "Licrostroma subgiganteum" OR "Lithacodes fasciola" OR "Lithophane bethunei" OR "Lithophane grotei" OR "Lithophane innominata" OR "Lithophane laticinerea" OR "Lithophane petulca" OR "Longidorus poessneckensis" OR "Lophocampa caryae" OR "Lophocampa maculata" OR "Lopholeucaspis japonica" OR "Lycorma delicatula" OR "Lymantor decipiens" OR "Lymantria dispar" OR "Lyomyces crustosus" OR "Macaria pustularia" OR "Machimia tentoriferella" OR "Macrodiaporthe everhartii" OR "Malacosoma americana" OR "Malacosoma disstria" OR "Maple mosaic agent" OR "Massaria inquinans" OR "Massaria vomitoria" OR "Massariovalsa sudans" OR "Megalopyge crispata" OR "Melanaspis tenebricosa" OR "Melanconis appendiculata" OR "Melanconis everhartii" OR "Melanconis sudans" OR "Melanolophia canadaria" OR "Melanolophia signataria" OR "Meloidogyne arenaria" OR "Meloidogyne hapla" OR "Meloidogyne incognita" OR "Meloidogyne javanica" OR "Meloidogyne ovalis" OR "Meloidogyne platani" OR "Merismodes anomala" OR "Merulius corium" OR "Merulius tremellosus" OR "Mesocriconema xenoplax" OR "Mesolecanium nigrofasciatum" OR "Metanema determinata" OR "Molorchus bimaculatus bimaculatus" OR "Monarthrum fasciatum" OR "Monarthrum mali" OR "Monochaetia desmazieri" OR "Monochaetia kansensis" OR "Monochaetia monochaeta" OR "Morrisonia confusa" OR "Morrisonia latex" OR "Mutatoderma heterocystidium" OR "Mutatoderma mutatum" OR "Mycoacia fuscoatra" OR "Mycogloea carnosa" OR "Mycosphaerella maculiformis" OR "Myriangium duriaei" OR "Myxosporium acerinum" OR "Nadata gibbosa" OR "Naemosphaera acerina" OR "Nanidorus minor" OR "Nasutitermes corniger" OR "Necator salmonicolor" OR "Nectria cinnabarina" OR "Nectria coccinea" OR "Nectria galligena" OR "Nectria oropensoides" OR "Nectria veuillotiana" OR "Nectriopsis oropensoides" OR "Nemania albocincta" OR "Nemania serpens" OR "Nematocampa filamentaria" OR "Neoantrodia morganii" OR "Neoclytus acuminatus acuminatus" OR "Neodermea acerina" OR "Neonectria coccinea" OR "Neonectria ditissima" OR "Neopulvinaria innumerabilis innumerabilis" OR "Nepovirus persicae" OR "Nites betulella" OR "Nothopanus candidissimus" OR "Olethreutes appendiceum" OR "Oligonychus aceris" OR "Oligonychus ilicis" OR "Operophtera brumata" OR "Orbilia coccinella" OR "Oreana unicolorella" OR "Orgyia antiqua" OR "Orgyia definita" OR "Orgyia leucostigma" OR "Orgyia leucostigma plagiata" OR "Orthosia revicta" OR "Orthotaenia undulana" OR "Oxyporus populinus" OR "Paleacrita vernata" OR "Pallidohirschioporus biformis" OR "Pandemis lamprosana" OR "Panellus serotinus" OR "Panus neostrigosus" OR "Panus rudis" OR "Pappia fissilis" OR "Parachnopeziza miniopsis" OR "Paraclemensia acerifoliella" OR "Parallelia bistriaris" OR "Paratachardina pseudolobata" OR "Paratrichodorus minor" OR "Parlatoreopsis longispina" OR "Parlatoria oleae" OR "Parthenolecanium corni corni" OR "Peniophora affinis" OR "Peniophora cinerea" OR "Peniophora miniata" OR "Peniophora roumeguerei" OR "Peniophora versiformis" OR "Perenniporia fraxinophila" OR "Periphyllus lyropictus" OR "Periphyllus testudinaceus" OR "Pero morrisonaria" OR "Peroneutypa scoparia" OR "Peronophythora quercetorum" OR "Peyronellaea obtusa" OR "Pezicula acericola" OR "Pezicula carnea" OR "Peziza miniopsis" OR "Pezizella oenotherae" OR "Phaeophlebiopsis ravenelii" OR "Phaeotremella foliacea" OR "Phanerochaete affinis" OR "Phanerochaete laevis" OR "Phanerochaete sanguinea" OR "Phanerochaete sordida" OR "Phellinopsis conchata" OR "Phellinus ferreus" OR "Phellinus ferruginosus" OR "Phellinus gilvus" OR "Phellinus igniarius" OR "Phellinus laevigatus" OR "Phellinus viticola" OR "Phialophora melinii" OR "Phigalia titea" OR "Phlebia ludoviciana" OR "Phlebia setulosa" OR "Phlebia tremellosa" OR "Phloeospora aceris" OR "Phlogophora periculosa" OR "Pholiota squarrosoides" OR "Pholiota stratosa" OR "Phoma minima" OR "Phyllactinia guttata" OR "Phyllactinia marissallii" OR "Phyllactinia suffulta" OR "Phyllactinia marissalii" OR "Phyllonorycter trinotella" OR "Phyllosticta acericola" OR "Phyllosticta capitalensis" OR "Phyllosticta cornivora" OR "Phyllosticta minima" OR "Phyllosticta minutissima" OR "Phyllosticta rubella" OR "Phyllosticta rubra" OR "Phyllotopsis nidulans" OR "Physalospora abdita" OR "Physalospora obtusa" OR "Phytophthora abietivora" OR "Phytophthora cactorum" OR "Phytophthora cambivora" OR "Phytophthora cinnamomi" OR "Phytophthora gonapodyides" OR "Phytophthora plurivora" OR "Phytophthora pseudosyringae" OR "Phytophthora quercetorum" OR "Phytopythium vexans" OR "Pilidium acerinum" OR "Pilidium concavum" OR "Plagiostoma acerophilum" OR "Plagiostoma petiolophilum" OR "Plagodis alcoolaria" OR "Plagodis serinaria" OR "Pleosphaeria echinata" OR "Pleuroceras pseudoplatani" OR "Pleuroceras tenella" OR "Pleuroceras tenellum" OR "Pleurophragmium parvisporum" OR "Pleurotus cystidiosus" OR "Pleurotus elongatipes" OR "Pleurotus ostreatus" OR "Pleurotus ulmarius" OR "Plicatura crispa" OR "Plicaturopsis crispa" OR "Pluteus aurantiorugosus" OR "Pluteus coccineus" OR "Pococera asperatella" OR "Podofomes mollis" OR "Polyporus adustus" OR

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	"Polyporus brumalis" OR "Polyporus cinnabarinus" OR "Polyporus conchifer" OR "Polyporus cuticularis" OR "Polyporus elegans" OR "Polyporus fissilis" OR "Polyporus glomeratus" OR "Polyporus guttulatus" OR "Polyporus hirsutus" OR "Polyporus hispidus" OR "Polyporus pachycheiles" OR "Polyporus pargamenus" OR "Polyporus sanguineus" OR "Polyporus sulphureus" OR "Polyporus versicolor" OR "Polystictus hirsutus" OR "Poria ambigua" OR "Poria eupora" OR "Poria ferruginosa" OR "Poria purpurea" OR "Poria subacida" OR "Poriella subacida" OR "Poronidulus conchifer" OR "Pratylenchus brachyurus" OR "Pratylenchus crenatus" OR "Probole alienaria" OR "Probole amicaria" OR "Propolis farinosa" OR "Propolis versicolor" OR "Prosthecium appendiculatum" OR "Prosthecium pyriforme" OR "Proteoteras aesculana" OR "Proteoteras moffatiana" OR "Proteoteras willingana" OR "Protoboarmia porcelaria" OR "Pseudomonas syringae" OR "Pseudophlebia setulosa" OR "Pseudospiropes simplex" OR "Pseudotrichia mutabilis" OR "Pulvinaria acericola" OR "Pulvinaria regalis" OR "Pycnopeziza americana" OR "Pycnopeziza sympodialis" OR "Pycnoporus cinnabarinus" OR "Pyrenopeziza leucodermis" OR "Pythium vexans" OR "Ramularia lethalis" OR "Rhizoctonia solani" OR "Rhodofomes cajanderi" OR "Rhodotus palmatus" OR "Rhyncaphytoptus magnificus" OR "Rhytisma acerinum" OR "Rhytisma americanum" OR "Rhytisma punctatum" OR "Ricania speculum" OR "Rigidonotus glomeratus" OR "Rigidoporus ulmarius" OR "Rosellinia aquila" OR "Rutherfordia major" OR "Sarcomyxa serotina" OR "Sawadaea bicornis" OR "Sawadaea tulasnei" OR "Schizophyllum commune" OR "Schizothyrium pomi" OR "Schizoxylon microsporum" OR "Schizura ipomoeae" OR "Sclerotiopsis concava" OR "Scutellonema brachyurum" OR "Scutellonema brachyurus" OR "Scytinostroma artocreas" OR "Scytinostroma galactinum" OR "Scytinostroma portentosum" OR "Selenia kentaria" OR "Semiothisa aemulataria" OR "Semiothisa ulsterata" OR "Septobasidium castaneum" OR "Septobasidium fumigatum" OR "Septobasidium pseudopedicellatum" OR "Septoria aceris" OR "Solenia anomala" OR "Sparganothis acerivorana" OR "Sparganothis pettitana" OR "Sphaerella brunnea" OR "Sphaerognomonia carpinea" OR "Sphaeronaema acerinum" OR "Sphaeronaema nigripes" OR "Spilosoma virginica" OR "Sporidesmium peziza" OR "Stachycoremium parvulum" OR "Stagonospora collapsa" OR "Steccherinum ochraceum" OR "Steganosporium ovatum" OR "Stegonsporium ovatum" OR "Stegonsporium pyriforme" OR "Stereum complicatum" OR "Stereum erumpens" OR "Stereum hirsutum" OR "Stereum ostrea" OR "Stereum roseocarneum" OR "Stereum rugosum" OR "Stereum versiforme" OR "Sternidius alpha misellus" OR "Stilbella acerina" OR "Stilbum parvulum" OR "Strangalepta pubera" OR "Strossmayeria bakeriana" OR "Strossmayeria basitricha" OR "Strumella coryneoidea" OR "Symmerista leucitys" OR "Synanthedon acerni" OR "Synanthedon acerni biscki" OR "Synanthedon acerrubri" OR "Synchaetomella acerina" OR "Synchytrium vaccinii" OR "Taeniolella laevistipitata" OR "Taeniothrips inconsequens" OR "Takamatsuella circinata" OR "Taphrina dearnessii" OR "Taphrina lethifera" OR "Taphrina letifera" OR "Teichospora winteriana" OR "Tetracis cachexiata" OR "Tetranychus urticae" OR "Thaxteriella pezizula" OR "Thelephora albidobrunnea" OR "Thelephora murrayi" OR "Thelonectria gongylodes" OR "Thelonectria veuillotiana" OR "Thyridopteryx ephemeraeformis" OR "Thysanoes fimbricornis" OR "Tomentella lapida" OR "Tomentella spongiosa" OR "Trametes cinnabarina" OR "Trametes hirsuta" OR "Trametes malicola" OR "Trametes morganii" OR "Trametes pubescens" OR "Trametes sepium" OR "Trametes versicolor" OR "Tremella foliacea" OR "Tremella lutescens" OR "Tremella mesenterica" OR "Trichaptum biforme" OR "Trichoderma citrinum" OR "Trichoderma viride" OR "Trichoferus campestris" OR "Trichopeziza acerina" OR "Trirachys sartus" OR "Trischidias atomus" OR "Tubakia dryina" OR "Tulasnella bifrons" OR "Tulasnella violea" OR "Tylenchorhynchus claytoni" OR "Tympanis acericola" OR "Tympanis acerina" OR "Umbelopsis versiformis" OR "Uncinula aceris" OR "Uncinula circinata" OR "Urgleptes facetus" OR "Urgleptes querci" OR "Urgleptes signatus" OR "Ustulina deusta" OR "Valetoniella claviornata" OR "Valsa ambiens" OR "Valsa ambiens subsp. ambiens" OR "Valsa ambiens subsp. leucostomoides" OR "Valsa ceratosperma" OR "Valsa decorticans" OR "Valsa etherialis" OR "Valsa pauperata" OR "Valsa rugiella" OR "Valsaria acericola" OR "Vararia effuscata" OR "Vararia investiens" OR "Vasates quadripedes" OR "Vascular streak dieback agent" OR "Velataspis dentata" OR "Venturia acerina" OR "Verticillium albo-atrum" OR "Verticillium dahliae" OR "Verticillium alboatrum" OR "Vitreoporus dichrous" OR "Volvaria bombycina" OR "Volvariella bombycina" OR "Xanthomonas acernea" OR "Xanthotype sospeta" OR "Xiphinema americanum" OR "Xiphinema americanum sensu lato" OR "Xiphinema americanum sensu stricto" OR "Xiphinema luci" OR "Xylaria bulbosa" OR "Xylaria cubensis" OR "Xylaria hypoxylon" OR "Xyleborus ferrugineus" OR "Xylella fastidiosa" OR "Xylella fastidiosa subsp. multiplex" OR "Xylosandrus compactus" OR "Xylosandrus crassiusculus" OR "Xylosandrus curtulus" OR "Xylosandrus germanus" OR "Xylosandrus mutilatus" OR "Xylosandrus zimmermanni" OR "Xylotrechus aceris" OR "Zale galbanata" OR "Zale minerea" OR "Zale minerea norda"

TABLE B.4 String for *Acer saccharinum*.

Web of Science All databases	**TOPIC:** "Acer saccharinum" OR "A. saccharinum" OR "Argentacer saccharinum" OR "Saccharodendron saccharinum" OR "Sacchrosphendamnus saccharinus" OR "Acer coccineum" OR "Acer collinsonia" OR "Acer dasycarpum" OR "Acer eriocarpum" OR "Acer heterophyllum var. laciniatum" OR "Acer pallidum" OR "Acer pavia" OR "Acer saira" OR "Acer virginianum" OR "Acer wagneri laciniatum" OR "Acer weiri-laciniatum" OR "Argentacer saccharinum var. laciniatum" OR "silver maple" **AND** **TOPIC:** 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" **NOT** **TOPIC:** "winged seeds" OR metabolites OR *tannins OR climate OR "maple syrup" OR syrup OR mycorrhiz* OR "carbon loss" OR pollut* OR weather OR propert* OR probes OR spectr* OR antioxidant$ OR transformation OR RNA OR DNA OR "Secondary plant metabolite$" OR metabol* OR "Phenolic compounds" OR Quality OR Abiotic OR Storage OR Pollen* OR fertil* OR Mulching OR Nutrient* OR Pruning OR drought OR "human virus" OR "animal disease*" OR "plant extracts" OR immunological OR "purified fraction" OR "traditional medicine" OR medicine OR mammal* OR bird* OR "human disease*" OR biomarker$ OR "health education" OR bat$ OR "seedling$ survival" OR "anthropogenic disturbance" OR "cold resistance" OR "salt stress" OR salinity OR "aCER method" OR "adaptive cognitive emotion regulation" OR nitrogen OR hygien* OR "cognitive function$" OR fossil$ OR *toxicity OR Miocene OR postglacial OR "weed control" OR landscape

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TABLE B.5 String for *Acer saccharum*.

Web of Science All databases	**TOPIC:** "Acer saccharum" OR "A. saccharum" OR "Saccharodendron saccharum" OR "sugar maple" OR "hard maple" OR "rock maple" OR "rocki maple" **AND** **TOPIC:** 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" **NOT** **TOPIC:** "winged seeds" OR metabolites OR *tannins OR climate OR "maple syrup" OR syrup OR mycorrhiz* OR "carbon loss" OR pollut* OR weather OR propert* OR probes OR spectr* OR antioxidant$ OR transformation OR RNA OR DNA OR "Secondary plant metabolite$" OR metabol* OR "Phenolic compounds" OR Quality OR Abiotic OR Storage OR Pollen* OR fertil* OR Mulching OR Nutrient* OR Pruning OR drought OR "human virus" OR "animal disease*" OR "plant extracts" OR immunological OR "purified fraction" OR "traditional medicine" OR medicine OR mammal* OR bird* OR "human disease*" OR biomarker$ OR "health education" OR bat$ OR "seedling$ survival" OR "anthropogenic disturbance" OR "cold resistance" OR "salt stress" OR salinity OR "aCER method" OR "adaptive cognitive emotion regulation" OR nitrogen OR hygien* OR "cognitive function$" OR fossil$ OR *toxicity OR Miocene OR postglacial OR "weed control" OR landscape **NOT** **TOPIC:** "Acanthophysium oakesii" OR "Acarosporina microspora" OR "Aceria elongata" OR "Aceria elongatus" OR "Aceria fraxiniflora" OR "Aceria modesta" OR "Aceria modestus" OR "Aceria regulus" OR "Acericecis ocellaris" OR "Acleris chalybeana" OR "Acremonium bacillisporum" OR "Acronicta americana" OR "Acronicta dactylina" OR "Acronicta retardata" OR "Actias luna" OR "Actinopelte dryina" OR "Aculops aceris" OR "Aculops maculatus" OR "Agaricites melleus" OR "Agaricus melleus f. luteoannulata" OR "Akanthomyces attenuatus" OR "Akanthomyces lecanii" OR "Aleurocorticium acerinum" OR "Aleurocorticium alliaceum" OR "Aleurocorticium candidum" OR "Aleurocorticium microsporum" OR "Aleurodiscus acerinus var. alliaceus" OR "Aleurodiscus acerinus var. dryinus" OR "Allophlebia ludoviciana" OR "Alsophila pometaria" OR "Alternaria alternata" OR "Alternaria brassicae" OR "Ambrosiella brunnea" OR "Amphicerus bicaudatus" OR "Amphipyra pyramidoides" OR "Anacamptodes ephyraria" OR "Anisandrus dispar" OR "Anisandrus obesus" OR "Anisandrus sayi" OR "Anisota rubicunda" OR "Anoplophora glabripennis" OR "Antaeotricha leucillana" OR "Antheraea polyphemus" OR "Anthostoma decipiens" OR "Antrodia albida" OR "Antrodia malicola" OR "Apioperdon pyriforme" OR "Aplosporella clintonii" OR "Aporpium caryae" OR "Archips cerasivorana" OR "Archips fuscocupreanus" OR "Armillaria calvescens" OR "Armillaria gallica" OR "Armillaria gemina" OR "Armillaria mellea" OR "Armillaria ostoyae" OR "Armillaria sinapina" OR "Armillaria tabescens" OR "Armillariella ostoyae" OR "Arthrobotrys arthrobotryoides" OR "Ascocoryne sarcoides" OR "Asteromella pruni-mahaleb" OR "Athelia scutellaris" OR "Atheliachaete sanguinea" OR "Aurantiporus fissilis" OR "Aureobasidium apocryptum" OR "Aureobasidium pullulans" OR "Bactrodesmium obovatum" OR "Bactrodesmium pallidum" OR "Bactrodesmium spilomeum" OR "Baltazaria galactina" OR "Besma endropiaria" OR "Besma quercivoraria" OR "Bispora betulina" OR "Bispora effusa" OR "Bjerkandera adusta" OR "Boeremia exigua" OR "Boisea trivittata" OR "Brachydesmiella biseptata" OR "Brachysporium nigrum" OR "Cacumisporium capitulatum" OR "Cadophora fastigiata" OR "Cadophora melinii" OR "Caloptilia aceris" OR "Caloptilia umbratella" OR "Calosphaeria microtheca" OR "Cameraria aceriella" OR "Cameraria saccharella" OR "Campaea perlata" OR "Camposporium ontariense" OR "Candelabrochaete septocystidia" OR "Capronia chlorospora" OR "Capronia minima" OR "Catastega aceriella" OR "Catunica adiposa" OR "Ceraceomyces americanus" OR "Ceraceomyces serpens" OR "Ceratocystis acericola" OR "Ceratocystis coerulescens" OR "Ceratocystis major" OR "Ceratocystis piceae" OR "Ceratocystis rostrocoronata" OR "Ceratocystis spinulosa" OR "Ceratocystis tenella" OR "Ceratocystis virescens" OR "Cerioporus leptocephalus" OR "Cerioporus squamosus" OR "Cerioporus varius" OR "Ceriporia septocystidia" OR "Ceriporia spissa" OR "Ceriporia tarda" OR "Cerococcus parrotti" OR "Cerrena unicolor" OR "Chaetosphaeria tortuosa" OR "Chionaspis acericola" OR "Chionomyces ontariensis" OR "Chloridium lignicola" OR "Chlorociboria aeruginosa" OR "Chondrostereum purpureum" OR "Choristoneura fractivittana" OR "Choristoneura rosaceana" OR "Chrysobothris femorata" OR "Chrysobothris mali" OR "Cingilia catenaria" OR "Cladosporium cladosporioides" OR "Cladosporium confusum" OR "Cladosporium humile" OR "Clavaria stricta" OR "Clepsis persicana" OR "Climacocystis borealis" OR "Climacodon septentrionalis" OR "Clonostachys rosea" OR "Cnestus mutilatus" OR "Coccomyces coronatus" OR "Collybia velutipes" OR "Columnosphaeria fagi" OR "Coniochaeta subcorticalis" OR "Coniochaeta velutina" OR "Coniophora arida" OR "Coniophora betulae" OR "Coniophora puteana" OR "Coniothyrium fuckelii" OR "Coprinellus micaceus" OR "Coprinus micaceus" OR "Cordana pauciseptata" OR "Cordyceps farinosa" OR "Coriolellus malicola" OR "Coriolopsis gallica" OR "Coriolus hirsutus" OR "Coriolus pubescens" OR "Coriolus versicolor" OR "Corniculantispora psalliotae" OR "Coronicium alboglaucum" OR "Corthylus columbianus" OR "Corthylus punctatissimus" OR "Corticium confluens" OR "Corticium galactinum" OR "Corticium leucoxanthum" OR "Corticium pini-canadensis" OR "Corticium roseocarneum" OR "Corticium scutellare" OR "Corticium tuberculatum" OR "Corticium vellereum" OR "Coryneum negundinis" OR "Criconema arkaense" OR "Cristinia helvetica" OR "Cristulariella depraedans" OR "Cristulariella moricola" OR "Cristulariella pyramidalis" OR "Crocigrapha normani" OR "Cryptendoxyla hypophloia" OR "Cryptococcus williamsi" OR "Cryptodiaporthe acerina" OR "Cryptodiaporthe myinda" OR "Cryptodiaporthe petiolophila" OR "Cryptostroma corticale" OR "Crystallicutis serpens" OR "Cylindrobasidium evolvens" OR "Cylindrocarpon candidulum" OR "Cystostereum murraii" OR "Cystostereum murrayi" OR "Cystostereum pini-canadensis" OR "Cytospora ceratosperma" OR "Cytospora chrysosperma" OR "Cytospora decipiens" OR "Cytospora populina" OR "Dactylaria acerina" OR "Daedalea ambigua" OR "Daedalea confragosa" OR "Daedalea unicolor" OR "Daedaleopsis confragosa" OR "Dasineura communis" OR "Dasychira dorsipennata" OR "Dasychira obliquata" OR "Dasychira plagiata" OR "Datronia mollis" OR "Davidsoniella virescens" OR "Dematophora necatrix" OR "Dendrocorticium roseocarneum" OR "Dendrocorticium violaceum" OR "Dendrominia dryina" OR "Dendrophoma pulvis-pyrius" OR "Dendrophora versiformis" OR "Dendrothele acerina" OR "Dendrothele

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alliacea" OR "Dendrothele candida" OR "Dendrothele microspora" OR "Dermea acerina" OR "Desarmillaria tabescens" OR "Diaporthe acerina" OR "Diaporthe dubia" OR "Diaspidiotus ancylus" OR "Diaspidiotus juglansregiae" OR "Diatrype albopruinosa" OR "Diatrype hochelagae" OR "Diatrype macounii" OR "Diatrype stigma" OR "Diatrypella frostii" OR "Dicarpella dryina" OR "Dichomeris ligulella" OR "Dichostereum effuscatum" OR "Dichostereum pallescens" OR "Dictyoporthe acerophila" OR "Dictyosporium toruloides" OR "Diderma radiatum" OR "Didymozoophaga arthrobotryoides" OR "Diplococcium catenulatum" OR "Diplodia acericola" OR "Discosphaerina fagi" OR "Discula campestris" OR "Dothidotthia negundinis" OR "Drepanaphis acerifoliae" OR "Drepanaphis carolinensis" OR "Drepanaphis choanotricha" OR "Drepanaphis idahoensis" OR "Drepanaphis kanzensis" OR "Drepanaphis keshenae" OR "Drepanaphis knowltoni" OR "Drepanaphis pallida" OR "Drepanaphis parva" OR "Drepanaphis parvus" OR "Drepanaphis sabrinae" OR "Drepanaphis simpsoni" OR "Drepanaphis tissoti" OR "Drepanosiphum platanoidis" OR "Drepanosiphum iranicum" OR "Drephanaphis sabrinae" OR "Dryocampa rubicunda" OR "Dryoxylon onoharaense" OR "Durella compressa" OR "Eacles imperialis" OR "Efibula tuberculata" OR "Efibulella deflectens" OR "Elmerina caryae" OR "Endoconidiophora coerulescens" OR "Endoconidiophora virescens" OR "Endophragmiella ontariensis" OR "Ennomos magnaria" OR "Ennomos subsignaria" OR "Entoleuca mammata" OR "Eotetranychus aceri" OR "Eotetranychus carpini" OR "Eotetranychus pruni" OR "Eotetranychus tiliarium" OR "Eotetranychus uncatus" OR "Epicoccum nigrum" OR "Epicoccum purpurascens" OR "Epinotia aceriella" OR "Erannis tiliaria" OR "Eriophyes fraxiniflora" OR "Erythricium salmonicolor" OR "Etainia ochrefasciella" OR "Euclea delphinii" OR "Eutrapela clemataria" OR "Eutypa ludibunda" OR "Eutypa spinosa" OR "Eutypella parasitica" OR "Eutypella stellulata" OR "Exidia glandulosa" OR "Exidia nucleata" OR "Favolus alveolaris" OR "Favolus alveolarius" OR "Flammula alnicola" OR "Flammulina velutipes" OR "Fomes applanatus" OR "Fomes conchatus" OR "Fomes connatus" OR "Fomes everhartii" OR "Fomes fomentarius" OR "Fomes fraxineus" OR "Fomes igniarius" OR "Fomes igniarius var. laevigatus" OR "Fomes pinicola" OR "Fomitiporia punctata" OR "Fomitopsis malicola" OR "Fomitopsis pinicola" OR "Fusarium solani" OR "Fuscoporia ferrea" OR "Fuscoporia ferruginosa" OR "Fuscoporia gilva" OR "Fusicladium humile" OR "Ganoderma applanatum" OR "Ganoderma lucidum" OR "Ganoderma resinaceum" OR "Ganoderma sessile" OR "Ginnsia viticola" OR "Glaucolepis saccharella" OR "Gliocladium roseum" OR "Gloeocystidiellum clavuligerum" OR "Gloeocystidiellum leucoxanthum" OR "Gloeohypochnicium analogum" OR "Gloeophyllum trabeum" OR "Gloeoporus dichrous" OR "Gloeosporium affine" OR "Gloeosporium apocryptum" OR "Gloeosporium decolorans" OR "Gloeosporium hysterioideum" OR "Gloeosporium saccharinum" OR "Gloeosporium saccharini" OR "Glycobius speciosus" OR "Gnomonia petiolophila" OR "Gnomonia tenella" OR "Gnomoniella petiolophila" OR "Gnomoniella tenella" OR "Gomphus floccosus" OR "Gongromerizella lignicola" OR "Grandinia helvetica" OR "Granulobasidium vellereum" OR "Graphium giganteum" OR "Grovesinia moricola" OR "Grovesinia pyramidalis" OR "Gymnopilus junonius" OR "Gymnopilus spectabilis" OR "Haematostereum rugosum" OR "Hainesia lythri" OR "Halyomorpha halys" OR "Halysidota tessellaris" OR "Hapalopilus rutilans" OR "Haploa lecontei" OR "Harringtonia brunnea" OR "Helicogloea exigua" OR "Helminthosporium velutinum" OR "Hemistropharia albocrenulata" OR "Hericium americanum" OR "Hericium coralloides" OR "Hericium erinaceus" OR "Hericium ramosum" OR "Heterocampa biundata" OR "Heterocampa guttivitta" OR "Holwaya mucida" OR "Hyalophora cecropia" OR "Hydnoporia corrugata" OR "Hydnoporia tabacina" OR "Hydnum erinaceus" OR "Hydnum septentrionale" OR "Hydropisphaera peziza" OR "Hygrophorus lignicola" OR "Hylocurus rudis" OR "Hymenochaete corrugata" OR "Hymenochaete rubiginosa" OR "Hymenochaete tabacina" OR "Hypagyrtis unipunctata" OR "Hypena baltimoralis" OR "Hyphantria cunea" OR "Hyphoderma heterocystidiatum" OR "Hyphoderma litschaueri" OR "Hyphoderma puberum" OR "Hyphoderma sambuci" OR "Hyphoderma setigerum" OR "Hyphodontia arguta" OR "Hyphodontia aspera" OR "Hyphodontia spathulata" OR "Hyphodontia subalutacea" OR "Hypholoma incertum" OR "Hypochnicium analogum" OR "Hypochnicium bombycinum" OR "Hypochnicium vellereum" OR "Hypothenemus dissimilis" OR "Hypothenemus eruditus" OR "Hypothenemus interstitialis" OR "Hypoxylon cohaerens" OR "Hypoxylon deustum" OR "Hypoxylon fragiforme" OR "Hypoxylon fuscum" OR "Hypoxylon mammatum" OR "Hypoxylon rubiginosum" OR "Hypoxylon serpens" OR "Hypsizygus ulmarius" OR "Hysterium pulicare" OR "Inonotus cuticularis" OR "Inonotus glomeratus" OR "Inonotus hispidus" OR "Iridopsis ephyraria" OR "Irpex lacteus" OR "Irpex latemarginatus" OR "Irpex mollis" OR "Irpex tulipiferae" OR "Irpiciporus pachyodon" OR "Ischnoderma resinosum" OR "Itame loricaria" OR "Itame loricaria julia" OR "Itame pustularia" OR "Jackrogersella cohaerens" OR "Jalapriya toruloides" OR "Jattaea microtheca" OR "Junghuhnia nitida" OR "Kabatiella apocrypta" OR "Keithomyces carneus" OR "Kirschsteiniothelia acerina" OR "Kneiffia subalutacea" OR "Kretzschmaria deusta" OR "Laeticorticium violaceum" OR "Laetiporus cincinnatus" OR "Laetiporus sulphureus" OR "Lambdina fiscellaria" OR "Lasiosphaeria ovina" OR "Laxitextum bicolor" OR "Lecanicillium attenuatum" OR "Lentinus arcularius" OR "Lentinus brumalis" OR "Lentinus levis" OR "Lentinus rudis" OR "Lenzites betulina" OR "Lenzites betulinus" OR "Lepidosaphes ulmi" OR "Leptocoris trivittatus" OR "Leptothyrium acerinum" OR "Libertella acerina" OR "Licea operculata" OR "Lithophane antennata" OR "Lithophane bethunei" OR "Lithophane innominata" OR "Lithophane laticinerea" OR "Lomographa vestaliata" OR "Longistigma caryae" OR "Lopharia cinerascens" OR "Lophiostoma excipuliforme" OR "Lophiostoma pileatum" OR "Lophocampa caryae" OR "Lophocampa maculata" OR "Lopholeucaspis japonica" OR "Lycia ursaria" OR "Lycogala flavofuscum" OR "Lycoperdon pyriforme" OR "Lycoperdon umbrinum" OR "Lycorma delicatula" OR "Lymantor decipiens" OR "Lymantria dispar" OR "Lymantria mathura" OR "Lyomyces crustosus" OR "Lyomyces sambuci" OR "Lytrosis unitaria" OR "Macaria loricaria" OR "Macaria pustularia" OR "Machimia tentoriferella" OR "Macrodiaporthe everhartii" OR "Macrohyporia extensa" OR "Macrurocampa marthesia" OR "Malacosoma americana" OR "Malacosoma americanum" OR "Malacosoma disstria" OR "Marquandomyces marquandii" OR "Massaria inquinans" OR "Massariovalsa sudans" OR "Mastigosporella nyssae" OR "Megalocystidium leucoxanthum" OR "Meganotus everhartii" OR "Melanconis everhartii" OR "Melanconis sudans" OR "Melanolophia canadaria" OR "Melanomma pulvis-pyrius" OR "Melanopsamma pomiformis" OR "Meloidogyne hapla" OR "Meloidogyne ovalis" OR "Merulius tremellosus" OR "Microthelia acerina" OR "Monilia brunnea" OR "Monodictys paradoxa" OR "Monostichella hysterioidea" OR "Morrisonia confusa" OR "Morrisonia latex" OR "Mortierella isabellina" OR "Mutatoderma heterocystidium" OR "Mutatoderma mutatum" OR "Mycena corticola" OR "Mycena meliigena" OR "Myrmaecium fulvopruinatum" OR "Myrmaecium rubricosum" OR "Myxarium nucleatum" OR "Nadata gibbosa" OR "Naemosphaera acerina" OR "Necator salmonicolor" OR "Nectria cinnabarina" OR "Nectria coccinea" OR "Nectria galligena" OR "Nectria peziza" OR "Nectria purtonii" OR "Nemania serpens" OR "Nematocampa limbata" OR "Nemoria mimosaria" OR "Neocucurbitaria cava" OR "Neodermea acerina" OR "Neonectria caespitosa" OR "Neonectria coccinea" OR "Neonectria ditissima" OR "Neoprociphilus aceris" OR "Neosteingelia texana" OR "NOT IN INDEX FUNGORUM" OR "Obrussa ochrefasciella" OR "Odontia crustosa" OR "Odontia fimbriata" OR "Oedocephalum cristallinum" OR "Oedocephalum crystallinum" OR "Olethreutes appendiceum" OR "Olethreutes glaciana" OR "Olethreutes

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nigranum" OR "Oligonychus aceris" OR "Operophtera bruceata" OR "Operophtera brumata" OR "Ophiostoma rostrocoronatum" OR "Ophiostoma tenellum" OR "Orgyia antiqua" OR "Orgyia leucostigma" OR "Orthosia garmani" OR "Orthosia revicta" OR "Oxyporus corticola" OR "Oxyporus latemarginatus" OR "Oxyporus populinus" OR "Paecilomyces carneus" OR "Paecilomyces farinosus" OR "Paecilomyces marquandii" OR "Paleacrita vernata" OR "Pallidohirschioporus biformis" OR "Palthis angulalis" OR "Pandemis canadana" OR "Pandemis lamprosana" OR "Pandemis limitata" OR "Panellus serotinus" OR "Panellus stipticus" OR "Panus rudis" OR "Panus stipticus" OR "Panus strigosus" OR "Pappia fissilis" OR "Paraclemensia acerifoliella" OR "Parallelia bistriaris" OR "Paraprociphilus tessellatus" OR "Patellaria compressa" OR "Penicillium brevicompactum" OR "Penicillium citrinum" OR "Penicillium frequentans" OR "Penicillium glabrum" OR "Penicillium granulatum" OR "Penicillium herquei" OR "Penicillium implicatum" OR "Penicillium lividum" OR "Penicillium multicolor" OR "Penicillium thomii" OR "Peniophora affinis" OR "Peniophora aspera" OR "Peniophora cinerea" OR "Peniophora heterocystidia" OR "Peniophora hydnoides" OR "Peniophora ludoviciana" OR "Peniophora mutata" OR "Peniophora sambuci" OR "Peniophora sanguinea" OR "Peniophora versiformis" OR "Peniophora viticola" OR "Peniophorella pubera" OR "Perenniporia fraxinea" OR "Peridea basitriens" OR "Peridea ferruginea" OR "Peridroma saucia" OR "Periphyllus acericola" OR "Periphyllus americanus" OR "Periphyllus californiensis" OR "Periphyllus hirticornis" OR "Periphyllus kuwanai" OR "Periphyllus lyropictus" OR "Periphyllus testudinaceus" OR "Pezicula acericola" OR "Pezicula cinnamomea" OR "Phaeoacremonium leptorrhynchum" OR "Phaeoacremonium leptorhynchum" OR "Phaeostalagmus arbusculus" OR "Phanerochaete affinis" OR "Phanerochaete cremea" OR "Phanerochaete filamentosa" OR "Phanerochaete laevis" OR "Phanerochaete sordida" OR "Phanerochaete tuberculata" OR "Phanerochaete velutina" OR "Phellinopsis conchata" OR "Phellinotus badius" OR "Phellinus ferreus" OR "Phellinus ferruginosus" OR "Phellinus fragrans" OR "Phellinus gilvus" OR "Phellinus igniarius" OR "Phellinus laevigatus" OR "Phellinus punctatus" OR "Phellinus viticola" OR "Phenacoccus acericola" OR "Phenacoccus grandicarpus" OR "Phenacoccus hortonarum" OR "Phialocephala botulispora" OR "Phialocephala lagerbergii" OR "Phialophora botulispora" OR "Phialophora fastigiata" OR "Phialophora lagerbergii" OR "Phialophora melinii" OR "Phigalia titea" OR "Phlebia acerina" OR "Phlebia deflectens" OR "Phlebia radiata" OR "Phlebia rufa" OR "Phlebia tremellosa" OR "Phleogena faginea" OR "Phloeospora aceris" OR "Phobetron pithecium" OR "Pholiota adiposa" OR "Pholiota albocrenulata" OR "Pholiota alnicola" OR "Pholiota aurivella" OR "Pholiota flammans" OR "Pholiota spectabilis" OR "Pholiota squarrosoides" OR "Phoma cava" OR "Phoma exigua" OR "Phoma minima" OR "Phoma platanoides" OR "Phomopsis platanoidis" OR "Phyllactinia marissallii" OR "Phyllactinia marissalii" OR "Phyllonorycter clemensella" OR "Phyllonorycter lucidicostella" OR "Phyllosticta aceris" OR "Phyllosticta cornivora" OR "Phyllosticta minima" OR "Phyllosticta minutella" OR "Phyllosticta minutissima" OR "Phyllosticta negundinis" OR "Phyllosticta saccharina" OR "Phyllotopsis nidulans" OR "Phymatotrichopsis omnivora" OR "Physalacria inflata" OR "Phytophthora cactorum" OR "Phytophthora cinnamomi" OR "Phytophthora citricola" OR "Phytophthora plurivora" OR "Picipes badius" OR "Pilidium acerinum" OR "Pilidium lythri" OR "Pityophthorus lautus" OR "Plagiostoma petiolophilum" OR "Plagiostoma pseudobavaricum" OR "Plagodis alcoolaria" OR "Plagodis serinaria" OR "Pleuroceras tenellum" OR "Pleurothecium recurvatum" OR "Pleurotus cornucopiae" OR "Pleurotus ostreatus" OR "Pleurotus sapidus" OR "Pleurotus ulmarius" OR "Plicatura crispa" OR "Plicaturopsis crispa" OR "Pluteus admirabilis" OR "Pococera asperatella" OR "Podofomes mollis" OR "Polyporus adustus" OR "Polyporus albellus" OR "Polyporus badius" OR "Polyporus biformis" OR "Polyporus brumalis" OR "Polyporus cuticularis" OR "Polyporus delectans" OR "Polyporus dichrous" OR "Polyporus elegans" OR "Polyporus gilvus" OR "Polyporus glomeratus" OR "Polyporus hirsutus" OR "Polyporus hispidus" OR "Polyporus nidulans" OR "Polyporus obtusus" OR "Polyporus pargamenus" OR "Polyporus pubescens" OR "Polyporus radiatus" OR "Polyporus resinosus" OR "Polyporus spumeus" OR "Polyporus squamosus" OR "Polyporus sulphureus" OR "Polyporus tulipiferae" OR "Polyporus varius" OR "Polyporus velutinus" OR "Polyporus versicolor" OR "Poria ambigua" OR "Poria candidissima" OR "Poria corticola" OR "Poria eupora" OR "Poria ferrea" OR "Poria ferruginosa" OR "Poria punctata" OR "Porotheleum perenne" OR "Pratylenchus penetrans" OR "Pratylenchus vulnus" OR "Probole amicaria" OR "Prociphilus tessellatus" OR "Prolimacodes badia" OR "Prosthecium acerinum" OR "Prosthecium acerophilum" OR "Prosthecium pyriforme" OR "Prosthecium stylosporum" OR "Proteoteras aesculana" OR "Proteoteras moffatiana" OR "Protoboarmia porcelaria" OR "Psathyrella incerta" OR "Pseudosciaphila duplex" OR "Pseudospiropes obscurus" OR "Pseudospiropes simplex" OR "Pseudospongipellis unicolor" OR "Pseudovalsa stylospora" OR "Pulveria porrecta" OR "Pycnoporus cinnabarinus" OR "Pyrrharctia isabella" OR "Radulomyces confluens" OR "Radulum orbiculare" OR "Ramaria stricta" OR "Ramichloridium anceps" OR "Repetophragma ontariense" OR "Rhinocladiella anceps" OR "Rhizochaete americana" OR "Rhizochaete filamentosa" OR "Rhodinia newara" OR "Rhyncaphytoptus constrictus" OR "Rhytisma acerinum" OR "Rhytisma americanum" OR "Rhytisma punctatum" OR "Rigidonotus glomeratus" OR "Rosellinia necatrix" OR "Rutherfordia major" OR "Sarcodontia spumea" OR "Sarcomyxa serotina" OR "Sarocladium bacillisporum" OR "Sawadaea bicornis" OR "Sawadaea tulasnei" OR "Schizophyllum commune" OR "Schizoxylon microsporum" OR "Schizura concinna" OR "Schizura ipomoeae" OR "Schizura unicornis" OR "Sclerotiomyces colchicus" OR "Scopuloides hydnoides" OR "Scutellinia scutellata" OR "Scytinostroma galactinum" OR "Septoria aceris" OR "Septoria saccharina" OR "Septoria saccharini" OR "Shenahweum minutum" OR "Shevtchenkella dentilobus" OR "Shevtchenkella variabilis" OR "Sistotrema brinkmannii" OR "Somion delectans" OR "Spadicoides catenulata" OR "Sparganothis acerivorana" OR "Sparganothis niveana" OR "Sparganothis pettitana" OR "Sphaeronaema acerinum" OR "Spilosoma virginica" OR "Spongipellis borealis" OR "Sporidesmium ontariense" OR "Stachybotrys atra" OR "Stachybotrys chartarum" OR "Steccherinum ciliolatum" OR "Steccherinum fimbriatum" OR "Stegonsporium acerinum" OR "Stegonsporium acerophilum" OR "Stegonsporium ovatum" OR "Stegonsporium pyriforme" OR "Stereum cinerascens" OR "Stereum complicatum" OR "Stereum hirsutum" OR "Stereum murrayi" OR "Stereum ostrea" OR "Stereum purpureum" OR "Stereum roseocarneum" OR "Stereum rugosum" OR "Stictis radiata" OR "Stigmella aceris" OR "Strossmayeria bakeriana" OR "Stylonectria purtonii" OR "Symmerista canicosta" OR "Symmerista leucitys" OR "Synanthedon acerni" OR "Synanthedon acerrubri" OR "Taeniothrips inconsequens" OR "Takamatsuella circinata" OR "Taphrina dearnessii" OR "Taphrina sacchari" OR "Tetracis cachexiata" OR "Tetracladium marchalianum" OR "Tetranychus canadensis" OR "Tetranychus mcdanieli" OR "Tetranychus urticae" OR "Thelephora murrayi" OR "Thelephora ruttneri" OR "Thelephora umbrinospora" OR "Thelonectria veuillotiana" OR "Thyridopteryx ephemeraeformis" OR "Thyronectria pyrrhochlora" OR "Thysanorea obscura" OR "Tomentella ruttneri" OR "Tortricidia flexuosa" OR "Tortricidia pallida" OR "Torula ligniperda" OR "Trametes cinnabarina" OR "Trametes hirsuta" OR "Trametes malicola" OR "Trametes mollis" OR "Trametes pubescens" OR "Trametes sepium" OR "Trametes versicolor" OR "Trechispora candidissima" OR "Trichaptum biforme" OR "Trichocladium canadense" OR "Trichoderma hamatum" OR "Trichoderma harzianum" OR "Trichoderma koningii" OR "Trichoderma lignorum" OR

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	"Trichoderma viride" OR "Tricladium angulatum" OR "Tripospermum myrti" OR "Trogia crispa" OR "Tubakia dryina" OR "Tubercularia ulmea" OR "Tubercularia vulgaris" OR "Turbinellus floccosus" OR "Tyromyces chioneus" OR "Umbelopsis isabellina" OR "Umbelopsis versiformis" OR "Uncinula circinata" OR "Ustulina deusta" OR "Ustulina vulgaris" OR "Valsa ambiens" OR "Valsa ambiens subsp. ambiens" OR "Valsa ambiens subsp. leucostomoides" OR "Valsa ceratophora" OR "Valsa decorticans" OR "Valsa etherialis" OR "Valsa leucostomoides" OR "Valsaria fulvopruinata" OR "Valsaria insitiva" OR "Valsaria rubricosa" OR "Vanderbylia fraxinea" OR "Vararia effuscata" OR "Vararia investiens" OR "Vararia pallescens" OR "Vasates aceriscrumena" OR "Vasates quadripedes" OR "Venturia acerina" OR "Verticillium albo-atrum" OR "Verticillium dahliae" OR "Verticillium lecanii" OR "Verticillium psalliotae" OR "Verticillium alboatrum" OR "Vitreoporus dichrous" OR "Volvariella bombycina" OR "Wolfiporia extensa" OR "Xanthoporia radiata" OR "Xiphinema americanum" OR "Xiphinema americanum sensu stricto" OR "Xylaria bulbosa" OR "Xylaria polymorpha" OR "Xyleborinus saxesenii" OR "Xyleborus dispar" OR "Xylella fastidiosa" OR "Xylodon asper" OR "Xylodon radula" OR "Xylosandrus compactus" OR "Xylosandrus germanus" OR "Xylosandrus mutilatus" OR "Xyloterinus politus" OR "Zygodesmus rubiginosus"

TABLE B.6 String for *Acer tataricum*.

Web of Science All databases	**TOPIC:** "Acer tataricum" OR "A. tataricum" OR "Euacer tataricum" OR "tartar maple" OR "Tatarian maple" **AND** **TOPIC:** 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" **NOT** **TOPIC:** "winged seeds" OR metabolites OR *tannins OR climate OR "maple syrup" OR syrup OR mycorrhiz* OR "carbon loss" OR pollut* OR weather OR propert* OR probes OR spectr* OR antioxidant$ OR transformation OR RNA OR DNA OR "Secondary plant metabolite$" OR metabol* OR "Phenolic compounds" OR Quality OR Abiotic OR Storage OR Pollen* OR fertil* OR Mulching OR Nutrient* OR Pruning OR drought OR "human virus" OR "Animal disease*" OR "plant extracts" OR immunological OR "purified fraction" OR "traditional medicine" OR medicine OR mammal* OR bird* OR "human disease*" OR biomarker$ OR "health education" OR bat$ OR "seedling$ survival" OR "Anthropogenic disturbance" OR "cold resistance" OR "salt stress" OR salinity OR "ACER method" OR "Adaptive cognitive emotion regulation" OR nitrogen OR hygien* OR "cognitive function$" OR fossil$ OR *toxicity OR Miocene OR postglacial OR "weed control" OR landscape

TABLE B.7 String for *Acer tataricum* subsp. *ginnala*.

Web of Science All databases	**TOPIC:** "Acer tataricum subsp. ginnala" OR "A. tataricum subsp. ginnala" OR "Acer ginnala" OR "Acer ginnala var. euginnala" OR "Acer ginnala subsp. euginnala" OR "Acer tataricum var. euginnala" OR "Acer tataricum var. ginnala" OR "Amur maple" **AND** **TOPIC:** 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" **NOT** **TOPIC:** "winged seeds" OR metabolites OR *tannins OR climate OR "maple syrup" OR syrup OR mycorrhiz* OR "carbon loss" OR pollut* OR weather OR propert* OR probes OR spectr* OR antioxidant$ OR transformation OR RNA OR DNA OR "Secondary plant metabolite$" OR metabol* OR "Phenolic compounds" OR Quality OR Abiotic OR Storage OR Pollen* OR fertil* OR Mulching OR Nutrient* OR Pruning OR drought OR "human virus" OR "Animal disease*" OR "plant extracts" OR immunological OR "purified fraction" OR "traditional medicine" OR medicine OR mammal* OR bird* OR "human disease*" OR biomarker$ OR "health education" OR bat$ OR "seedling$ survival" OR "Anthropogenic disturbance" OR "cold resistance" OR "salt stress" OR salinity OR "ACER method" OR "adaptive cognitive emotion regulation" OR nitrogen OR hygien* OR "cognitive function$" OR fossil$ OR *toxicity OR Miocene OR postglacial OR "weed control" OR landscape

TABLE B.8 String for *Acer* × *freemanii*.

Web of Science All databases	**TOPIC:** "Acer × freemanii" OR "A. × freemanii" OR "Acer freemanii" OR "Freeman maple" **AND** **TOPIC:** 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" **NOT** **TOPIC:** "winged seeds" OR metabolites OR *tannins OR climate OR "maple syrup" OR syrup OR mycorrhiz* OR "carbon loss" OR pollut* OR weather OR propert* OR probes OR spectr* OR antioxidant$ OR transformation OR RNA OR DNA OR "Secondary plant metabolite$" OR metabol* OR "Phenolic compounds" OR Quality OR Abiotic OR Storage OR Pollen* OR fertil* OR Mulching OR Nutrient* OR Pruning OR drought OR "human virus" OR "animal disease*" OR "plant extracts" OR immunological OR "purified fraction" OR "traditional medicine" OR medicine OR mammal* OR bird* OR "human disease*" OR biomarker$ OR "health education" OR bat$ OR "seedling$ survival" OR "anthropogenic disturbance" OR "cold resistance" OR "salt stress" OR salinity OR "aCER method" OR "adaptive cognitive emotion regulation" OR nitrogen OR hygien* OR "cognitive function$" OR fossil$ OR *toxicity OR Miocene OR postglacial OR "weed control" OR landscape

APPENDIX C

List of pests that can potentially cause an effect not further assessed

TABLE C.1 List of potential pests not further assessed.

N	Pest name	EPPO code	Group	Pest present in Ukraine	Present in the EU	*Acer* confirmed as a host (reference)	Pest can be associated with the commodity	Impact	Justification for inclusion in this list
1	*Paralongidorus rex*	PRLNRX	Nematodes	Yes	Limited	*Acer platanoides* (Susulovska, 2020)	Uncertain	Uncertain	Uncertainty on impact and association with the commodity
2	*Takahashia japonica*	TAKAJA	Insects	Uncertain	Limited	*Acer* (García Morales et al., 2025)	Yes	Uncertain	Uncertainty on the presence in Ukraine and impact

APPENDIX D

Excel file with the pest list of *Acer griseum, A. platanoides, A. rubrum, A. saccharinum, A. saccharum, A. tataricum, A. tataricum subsp. ginnala, A.* × *freemanii*

Excel file with the pest list of *Acer griseum, A. platanoides, A. rubrum, A. saccharinum, A. saccharum, A. tataricum, A. tataricum subsp. ginnala, A.* × *freemanii*.

Appendix D is available in the Supporting Information section.