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SCIENTIFIC OPINION

Commodity risk assessment of *Prunus* spp. plants from United Kingdom

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Abstract

The European Commission requested the EFSA Panel on Plant Health to prepare and deliver risk assessments for commodities listed in Commission Implementing Regulation (EU) 2018/2019 as 'High risk plants, plant products and other objects'. This Scientific Opinion covers plant health risks posed by: grafted potted plants up to 15 years old or bundles of grafted bare root plants up to 3 years old or graftwood up to 2 years old of *Prunus armeniaca*, *P. cerasifera*, *P. domestica*, *P. incisa* or *P. persica* imported from the United Kingdom (UK), taking into account the available scientific information, including the technical information provided by the UK. All pests associated with the commodities were evaluated against specific criteria for their relevance for this opinion. Two quarantine pests, *Candidatus* Phytoplasma aurantifolia-related strains (Pear decline Taiwan II, Crotalaria witches' broom phytoplasma, Sweet potato little leaf phytoplasma) and *Scirtothrips dorsalis*, two protected zone quarantine pests, *Bemisia tabaci* (European population) and *Erwinia amylovora,* and two non-regulated pests, *Eulecanium excrescens* and *Colletotrichum aenigma,* that fulfilled all relevant criteria were selected for further evaluation. The risk mitigation measures proposed in the technical Dossier from the UK were evaluated, taking into account the possible limiting factors. For these pests, expert judgement is given on the likelihood of pest freedom, taking into consideration the risk mitigation measures, including uncertainties associated with the assessment. The degree of pest freedom varied among the pests evaluated, with *E. amylovora* being the most frequently expected pest on the imported potted plants. The expert knowledge elicitation indicated with 95% certainty that between 9956 and 10,000 potted plants per 10,000 would be free from the abovementioned bacterium.

KEYWORDS

apricot, cherry, European Union, pathway risk assessment, peach, plant health, plant pest, plum, quarantine pest

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1 | INTRODUCTION

1.1 | Background and Terms of Reference as provided by European Commission

1.1.1 | Background

The new Plant Health Regulation (EU) 2016/2031,[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 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 Member States and other international organizations needs to be set.

In view of the above and in accordance with Article 29 of Regulation (EC) No 178/2002, the Commission asks EFSA to provide scientific opinion in the field of plant health for *Prunus armeniaca, P. domestica, P. incisa, P. persica* and *P. cerasifera* plants from the United Kingdom (UK) taking into account the available scientific information, including the technical dossier provided by Department for Environment, Food and Rural Affairs of United Kingdom.

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 selected *Prunus armeniaca, P. cerasifera, P. domestica, P. incisa and P. persica* plants from the UK 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).

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 (Severo Zapadny federalny okrug), Southern Federal District (Yuzhny federalny okrug), North Caucasian Federal District (Severo-Kavkazsky federalny okrug) and Volga Federal District (Privolzhsky federalny okrug), San Marino, Serbia, Switzerland, Türkiye, Ukraine and United

[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.

Kingdom (except Northern Ireland[5])). Those countries are historically linked to the reference to 'non-European countries' existing in the previous legal framework, Directive 2000/29/EC.

Consequently, for those countries,

(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 its evaluation, the Panel:

- Checked whether the information provided by the applicant (Department for Environment, Food and Rural Affairs of United Kingdom) in the technical dossier (hereafter referred to as 'the Dossier') was sufficient to conduct a commodity risk assessment. When necessary, additional information was requested from the applicant.
- Selected the relevant union EU-regulated 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 the UK and associated with the commodity.
- Assessed whether or not the applicant country implements specific measures for Union quarantine pests for which specific measures are in place for the import of the commodity from the specific country in the relevant legislative texts for emergency measures (https://ec.europa.eu/food/plant/plant_health_biosecurity/legislation/emergency_measures_en); the assessment was restricted to whether or not the applicant country applies those measures. The effectiveness of those measures was not assessed.
- Assessed whether the applicant country implements the special requirements specified in Annex VII (points 1–101) and Annex X of the Commission Implementing Regulation (EU) 2019/2072 targeting Union quarantine pests for the commodity in question from the specific country.
- 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 claimed to be implemented by the Department for Environment, Food and Rural Affairs of United Kingdom.

2 | DATA AND METHODOLOGIES

2.1 | Data provided by the Department for Environment, Food and Rural Affairs of United Kingdom

The Panel considered all the data and information (hereafter called 'the Dossier') provided by the Department for Environment, Food and Rural Affairs of United Kingdom (DEFRA) in May 2024, including the additional information provided by DEFRA in June and December 2024 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.

[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.

TABLE 1 Structure and overview of the Dossier.

Dossier section	Overview of contents	Filename
1.0	Technical dossier	Prunus armeniaca commodity information final.pdf Prunus persica information final.pdf Prunus domestica information final.pdf Prunus incisa information final.pdf Prunus cerasifera information final.pdf Prunus_species_producers_sample_product_list
2.0	Pest list	Prunus_pest_list_for submission.xlxs
3.0	Additional information provided by the DEFRA of United Kingdom	Prunuses additional information 13 June 2024.pdf Prunuses additional information 26 November 2024.pdf

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

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 *Prunus armeniaca, P. cerasifera, P. domestica, P. persica, P. incisa, P. avium, P. insititia, P. pseudocerasus and P. tomentosa*, the latter four being considered as rootstocks. The following searches were combined: (i) a general search to identify pests of selected *Prunus* spp. in different databases and (ii) a tailored search to identify whether these pests are present or not in the UK and the EU. The searches were run between 12 June 2024 and 4 July 2024. No language, date or document type restrictions were applied in the search strategy.

The search strategy and syntax were adapted to each of the databases listed in Table 2, according to the options and functionalities of the different databases and the CABI keyword thesaurus.

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 2 Databases used by EFSA for the compilation of the pest list associated to *Prunus spp.*

Database	Platform/link
Aphids on World Plants	https://www.aphidsonworldsplants.info/C_HOSTS_AAIntro.htm
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://webgate.ec.europa.eu/europhyt/
Leaf-miners	https://www.leafmines.co.uk/html/plants.htm
Nemaplex	https://nemaplex.ucdavis.edu/Nemabase2010/PlantNematodeHostStatusDDQuery.aspx
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/
Spider Mites Web	https://www1.montpellier.inra.fr/CBGP/spmweb/advanced.php
USDA ARS Fungal Database	https://nt.ars-grin.gov/fungaldatabases/fungushost/fungushost.cfm
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
GBIF	https://www.gbif.org/

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

2.3 | Methodology

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

In the first step, pests potentially associated with the commodity in the country of origin (EU-quarantine pests and other pests) that may require risk mitigation measures were 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 proposed risk mitigation measures for each relevant pest were evaluated in terms of efficacy or compliance with EU requirements as explained in Section 1.2.

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

Pest freedom was assessed by estimating the number of infested/infected:

1. Rooted plants in pots out of 10,000 exported plants.
2. Single trees or bundles of bare root plants out of 10,000 exported bundles.
3. Bundles of graftwood out of 10,000 exported bundles.

2.3.1 | Commodity information

Based on the information provided by the UK, the characteristics of the commodity are summarised in Section 3 of this Opinion.

2.3.2 | Identification of pests potentially associated with the commodity

To evaluate the pest risk associated with the importation of selected *Prunus* spp. from the UK, a pest list was compiled. The pest list is a compilation of all the identified plant pests associated with either *P. armeniaca, P. avium, P. cerasifera, P. domestica, P. incisa, P. insititia, P. persica, P. pseudocerasus* and *P. tomentosa*, based on (1) information provided in the dossier, (2) additional information provided by DEFRA, (3) as well as on searches performed by the Panel. The search strategy and search syntax were adapted to each of the databases listed in Table 2, according to the options and functionalities of the different databases and the CABI keyword thesaurus.

The scientific names of the host plants (*P. armeniaca, P. avium, P. cerasifera, P. domestica, P. incisa, P. insititia, P. persica, P. pseudocerasus* and *P. tomentosa*) 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 consulted by searching for the interceptions associated with commodities imported from the UK, at species level, from 1998 to May 2020 and TRACES for interceptions from June 2020 to January 2025. For the pests selected for further evaluation a search in the EUROPHYT and/or TRACES was performed for the interceptions from the whole world, at species level.

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 reduce the number of records to be screened.

The established search strings are detailed in Appendices B1–B9 and were run between 12 June 2024 and 4 July 2024 for selected *Prunus* spp.

The titles and abstracts of the scientific papers retrieved were screened and the pests associated with *P. armeniaca, P. avium, P. cerasifera, P. domestica, P. incisa, P. insititia, P. persica, P. pseudocerasus* and *P. tomentosa* 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® file in Appendix C) includes all identified pests that use *P. armeniaca, P. avium, P. cerasifera, P. domestica, P. incisa, P. insititia, P. persica, P. pseudocerasus* and *P. tomentosa* as host.

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).

2.3.3 | Listing and evaluation of risk mitigation measures

All proposed 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 selected *Prunus* spp. in nurseries were considered (see also Figure 1):

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

The risk mitigation measures adopted in the plant nurseries (as communicated by the UK) were evaluated with expert knowledge elicitation (EKE) according to the Guidance on uncertainty analysis in scientific assessment (EFSA Scientific Committee, 2018).

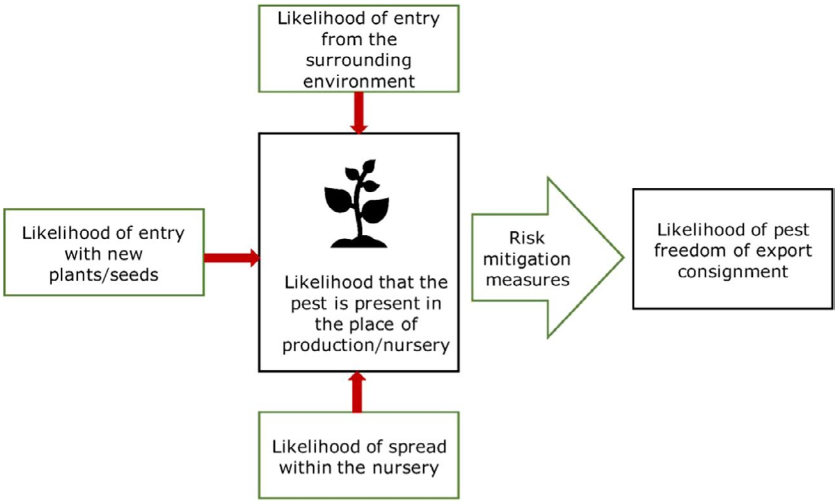

FIGURE 1 Conceptual framework to assess likelihood that plants are exported free from relevant pests. Source EFSA PLH Panel (2019).

Information on the pest biology, estimates of likelihood of entry of the pest to 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 (EKE)

To estimate the pest freedom of the commodity an EKE was performed following EFSA guidance (Annex B.8 of EFSA Scientific Committee, 2018). The specific questions for each commodity type for EKE were:

1. 'Taking into account (i) the risk mitigation measures in place in the nurseries and (ii) other relevant information, how many out of 10,000 potted plants of selected *Prunus* spp. are expected to be infested/infected with the relevant pest/pathogen upon arrival in the EU?'.
2. 'Taking into account (i) the risk mitigation measures in place in the nurseries and (ii) other relevant information, how many out of 10,000 bundles of bare root plants of selected *Prunus* spp. are expected to be infested/infected with the relevant pest/pathogen upon arrival in the EU?'.
3. 'Taking into account (i) the risk mitigation measures in place in the nurseries and (ii) other relevant information, how many out of 10,000 bundles of graftwood of selected *Prunus* spp. are expected to be infested/infected with the relevant pest/pathogen upon arrival in the EU?'.

The risk assessment is based on either single or bundled plants, as the most suitable units. The EKE questions were common to all pests for which the pest freedom of the commodity was estimated. The following reasoning is given to justify a common EKE:

(i) For the pests under consideration, cross contamination during transport is possible.

The EKE questions were common to all pests for which the pest freedom of the commodity was estimated.

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

3 | COMMODITY DATA

3.1 | Description of the commodity

According to the dossier and the integration of additional information provided by DEFRA, the commodities to be imported are either bundles of graftwood, grafted bare root plants or grafted single plants in pots, of:

- *Prunus armeniaca* (common name: apricot, family: Rosaceae) grafted on *P. domestica* and *P. insititia* rootstocks.
- *P. cerasifera* (common name: cherry plum, family: Rosaceae) grafted on P. *cerasifera* and *P. insititia* rootstocks.
- *P. domestica* (common name: plum, family: Rosaceae) grafted on *P. domestica*, *P. insititia* or *P. tomentosa* × *P. cerasifera* rootstocks.
- *P. incisa* (common name: Fuji cherry, family: Rosaceae) grafted on *P. avium* or *P. avium* × *P. pseudocerasus* rootstocks.
- *P. persica* (common name: peach, family: Rosaceae) grafted on *P. insititia* rootstocks.

Specifically, the commodities considered to be imported into the EU from the UK are:

1. Single rooted plants in pots, up to 15 years old (up to 40 mm diameter and up to 400 cm height) (Figure 2).
2. Bare root plants, up to 3 years (whips) – that can be grouped in bundles of 5–25 plants per bundle (up to 40 mm in diameter and 300 cm height) or exported as single bare root trees depending on their size (Figures 3–8).
3. Graftwood, bundles of 10–20 plants per bundle, up to 2 years old (up to 12 mm in diameter and up to 45 cm height) (Figure 9).

Single rooted plants in pots can be moved at any point in the year to fulfil customer demand. These will likely be destined for garden centre trade rather than nurseries. These plants may be exported with leaves, depending on the timing of the export and the life cycle of the selected *Prunus* species.

Bare root plants may also have some leaves at the time of export, in particular when exported in early winter.

Graftwoods are strong young shoots bearing buds which are collected from mother plants and are suitable for use in chip budding or grafting. The shoots are approximately 45 cm long and will typically have 9, 10 or more buds present.

FIGURE 2 Plants in pots of *Prunus persica* (photo provided by DEFRA).

FIGURE 3 *Prunus domestica* bare root plant (photo provided by DEFRA).

FIGURE 4 Bare root plants of *Prunus armeniaca* in small bundles (photo provided by DEFRA).

FIGURE 5 Bare root plant of *Prunus cerasifera* (photo provided by DEFRA).

FIGURE 6 Bare root plant of *Prunus persica* (photo provided by DEFRA).

FIGURE 7 Bare root plants of *Prunus incisa* (photo provided by DEFRA).

FIGURE 8 *Prunus* spp. bare root plants bundled prior to despatch (photo provided by DEFRA).

FIGURE 9 *Prunus domestica* graftwood (photo provided by DEFRA).

FIGURE 10 *Prunus* spp. mother trees used for graftwood production (photo provided by DEFRA).

3.2 | Description of the production areas

According to the dossiers and additional information provided, exporting nurseries are predominately situated in the rural areas. The surrounding land tends to be arable farmland with some pasture for animals and small areas of woodland. Hedges are often used to define field boundaries and grown along roadsides.

Arable crops: these are rotated in line with good farming practice and could include oilseed rape (*Brassica napus*), barley (*Hordeum vulgare*), turnips (*Brassica rapa* subsp. *rapa*), potatoes (*Solanum tuberosum*), wheat (*Triticum* spp.) and maize (*Zea mays*).

Pasture: Predominantly ryegrass (*Lolium* spp.).

Woodland: These tend to be a standard UK mixed woodland, with a range of UK native trees such as oak (*Quercus robur*), pine (*Pinus* spp.), poplar (*Populus* spp.), ash (*Fraxinus* spp.), sycamore (*Acer pseudoplatanus*), holly (*Ilex* spp.), norway maple (*Acer platanoides*), field maple (*Acer campestre*).

Hedges: they are made up of a range of species including alder (*Alnus glutinosa*), hazel (*Corylus avellana*), hawthorn (*Crataegus* spp.), leylandii (*Cupressus* ×*x leylandii*), ivy (*Hedera* spp.), holly (*Ilex* spp.), laurel (*Prunus laurocerasus*), blackthorn (*Prunus spinosa*) and yew (*Taxus baccata*).

According to the submitted dossier it is not possible to identify what plant species are growing within the gardens of private dwellings.

The nearest woodland to one of the nurseries borders the boundary fence. The composition aligns with the description above.

The commodities grown at the nursery will vary from year to year including not only other *Prunus* spp., but also *Malus* spp. and *Pyrus* spp. plants.

3.3 | Production and handling processes

3.3.1 | Growing conditions

Most plants are grown in the field and in containers outdoors. Only early growth stages are maintained under protection, such as young plants/seedlings where there is an increased vulnerability due to climatic conditions including frost.

According to the submitted dossier:

- In the production or procurement of plants, the use of growing media is assessed for the potential to harbour and transmit plant pests. Growers most commonly use virgin peat or peat-free compost. which is a mixture of coir, tree bark, wood fibre, etc. This compost is heat-treated by commercial suppliers during production to eliminate pests and pathogens. It is supplied in sealed bulk bags or shrink-wrapped bales and stored off the ground on pallets. Where delivered in bulk, compost is kept in a dedicated bunker, either indoors, or covered by tarpaulin outdoors, and with no risk of contamination with soil or other material.
- Growers must have an appropriate programme of weed management in place at the nursery. Growing areas are kept clear of non-cultivated herbaceous plants. In access areas, non-cultivated herbaceous plants are kept to a minimum and only exist at nursery boundaries. Non-cultivated herbaceous plants grow in less than 1% of the nursery area. The predominant species is rye grass (*Lolium* spp.). Other identified species may include common daisy (*Bellis perennis*), hairy bittercress (*Cardamine hirsute*), bluebells (*Hyacinthoides non-scripta*), creeping cinquefoil (*Potentilla reptans*) and dandelions (*Taraxacum officinale*). Growers are required to assess water sources, irrigation and drainage systems used in the plant production for the potential to harbour and transmit plant pests. Water may be obtained from the mains water supply, boreholes, rivers or reservoirs/lagoons. Water is routinely sampled and sent for analysis. No quarantine pests have been found so far.
- General hygiene measures are undertaken as part of routine nursery production, including disinfection of tools and equipment between batches/lots. Tools are disinfected after the operation on a stock and before being used on a different plant species. The tools are in a disinfectant and wiped with a clean cloth between trees to reduce the risk of virus and bacterial transfer between subjects. There are various disinfectants available, with Virkon S (active substances: potassium peroxymonosulfate and sodium chloride) being a common example.
- All residues or waste materials are assessed for the potential to host, harbour and transmit pests. Post-harvest and through the autumn and winter, leaves, prunings and weeds are all removed from the nursery to reduce the number of overwintering sites for pests and diseases.

3.3.2 | Source of planting material

Plant material is only grown by grafting and budding from mother stock held on the nursery (Figure 10). Original mother stock sourced in the UK would be certified with UK Plant Passports. Original mother stock from EU countries (mostly the Netherlands) would be certified with phytosanitary certificates.

Additionally, according to the submitted dossier, *Prunus* species are grown in Great Britain in line with the Plant Health (Amendment etc.) (EU Exit) Regulations 2020 and the Plant Health (Phytosanitary Conditions) (Amendment) (EU Exit) Regulations 2020.

3.3.3 | Production cycle

As indicated in the submitted dossier, bare root plants are planted in the field from late autumn to early spring (November to March) and rooted plants in pots are planted at any time of the year, with winter as the most common. Flowering occurs during late spring (April–June), depending on the variety and weather conditions. Likewise, fruiting occurs from late summer to late autumn depending on the variety and weather conditions during the growing season.

Bare root plants are harvested in winter to be able to lift plants from the field, as plants are into a dormant phase. These are washed on site.

Rooted plants in pots can be moved at any timepoint in during the year, but usually between September and May.

Rooted plants in pots may be either grown in EU-compliant growing media in pots for their whole life, or initially grown in the field before being lifted, root-washed to remove any soil and then potted in EU-compliant growing media.

The growing medium used is either virgin peat or peat-free compost (a mixture of coir, tree bark, wood fibre, etc.) complying with the requirements for growing media as specified in the Annex VII of the Commission Implementing Regulation 2019/2072. This compost is heat-treated by commercial suppliers during production to eliminate pests and diseases. It is supplied in sealed bulk bags or shrink-wrapped bales and stored off the ground on pallets, these are free from contamination. Where delivered in bulk, compost is kept in a dedicated bunker, either indoors, or covered by tarpaulin outdoors, and with no risk of contamination with soil or other material.

3.3.4 | Pest monitoring during production

According to the submitted dossier, the plant material is regularly monitored for plant health issues. This monitoring is carried out by trained nursery staff via regular crop walking and records kept of this monitoring. Qualified agronomists also undertake regular crop walks to verify the producer's assessments. Curative or preventative actions are implemented together with an assessment of phytosanitary risk. Unless a pest can be immediately and definitively identified as non-quarantine, growers are required to treat it as a suspect quarantine pest and notify the competent authority.

Growers designate trained or qualified personnel responsible for the plant health measures within their business. Training records of internal and external training must be maintained, and evidence of continuing professional development to maintain awareness of current plant health issues.

Incoming plant material and other goods such as packaging material and growing media, which have the potential to be infected or harbour pests are checked on arrival. Growers have procedures in place to quarantine any suspect plant material and to report findings to the authorities.

Growers keep records allowing traceability for all plant material handled. These records must allow a consignment or consignment in transit to be traced back to the original source, as well as forward to identify all trade customers to which those plants have been supplied.

Crop protection is achieved using a combination of measures including approved plant protection products, biological control or physical measures. Plant protection products are only used when necessary and records of all plant protection treatments are kept. Although no measures/treatments are taken against soil pests, containerised plants are grown in trays on top of protective plastic membranes to prevent contact with soil. Membranes are regularly refreshed when needed. Alternatively, plants may be grown on raised galvanised steel benches stood on gravel as a barrier between the soil and bench feet and/or concreted surfaces.

All residues or waste materials shall be assessed for the potential to host, harbour and transmit pests.

According to the dossier post-harvest and through the autumn and winter, nursery management is centred on pest and disease prevention. Leaves, prunings and weeds are all removed from the nursery to reduce the number of overwintering sites for pests and diseases.

The UK carries out surveys for Regulated Quarantine pests. These include *Candidatus phytoplasma prunorum, Erwinia amylovora* (see above), *Nepovirus nicotianae* (Tobacco ringspot virus) and *Xanthomonas arboricola* pv. *pruni*.

UK plant health inspectors monitor all producers for pests and diseases during crop certification and passporting inspections. In addition, the Plant Health and Seeds Inspectorate (PHSI) (in England and Wales) carries out a programme of Quarantine Surveillance in registered premises, inspecting plants grown and moved within the UK market. Similar arrangements operate in Scotland.

UK surveillance is based on visual inspection with samples taken from symptomatic material, and where appropriate, samples are also taken from asymptomatic material (e.g. plants, tubers, soil, watercourses). For sites with the likelihood of multiple pest and host combinations (e.g. ornamental and retail sites), inspectors make use of their standard method for site selection and visit frequency, whereby clients are assessed taking into account business activity, size of business and source material, so for example a large propagator using third country material receives 10 visits per year whilst a small retailer selling locally sourced material is visited once every second year. Where pest- specific guidelines are absent, inspectors select sufficient plants to give a 95% probability of detecting symptoms randomly distributed on 1.5% of plants in a batch/consignment. For inspections of single hosts, possibly with multiple pests, survey site selection is often directed to specific locations identified by survey planners.

According to the submitted dossier in the last 3 years, there has been a substantial level of inspection of registered *Prunus* producers, both in support of the Plant Passporting scheme (checks are consistent with EU legislation, with a minimum of one a year for authorised operators) and as part of the Quarantine Surveillance programme (Great Britain uses the same framework for its surveillance programme as the EU).

During production, in addition to the general health monitoring of the plants by the nurseries, official growing season inspections are undertaken by the UK Plant Health Service at an appropriate time, taking into consideration factors such as the likelihood of pest presence and the growth stage of the crop. Where appropriate this could include sampling and laboratory analysis. Official sampling and analysis could also be undertaken nearer to the point of export depending on the type of analysis and the import requirements of the country being exported to. Samples are generally taken on a representative sample of plants, in some cases, however, where the consignment size is quite small, all plants are sampled. Magnification equipment is provided to all inspectors as part of their standard equipment and is used during inspections when appropriate.

Once all other checks have been completed a final pre-export inspection is undertaken as part of the process of issuing a phytosanitary certificate. These inspections are generally undertaken usually within 1–2 days, and not more than 2 weeks before export. Phytosanitary certificates are only issued if the commodity meets the required plant health standards after inspection and/or testing according to appropriate official procedures.

In case the plant shows signs of infection, the protocol is to treat the plants if they are on site for a sufficient period of time or, if that is not possible, to destroy all pest infested plants. All other host plants in the nursery would also be treated. A phytosanitary certificate for export will not be issued until the UK Plant Health inspectors confirm that the plants are free from pests.

3.3.5 | Post-harvest processes and export procedure

Graftwood is wrapped in plastic and packed in cardboard boxes or Dutch crates on ISPM 15- certified wooden pallets, or metal pallets, dependant on quantity. This may be exported in bundles of 10–20 items.

Bare root plants are lifted and washed free from soil with a low-pressure washer in the outdoor nursery area away from the packing/cold store area. In some cases, the plants may be kept in a cold store stored for up to 5 months after harvesting prior to export.

Prior to export bare root plants may be placed in bundles between 5 and 25 plants, or exported as single bare root plants, depending on their size. They are then wrapped in polythene and packed and distributed on ISPM 15 15-certified wooden pallets, or metal pallets. Alternatively, they may be placed in pallets which are then wrapped in polythene. Small volume orders may be packed in waxed cardboard cartons or polythene bags and dispatched via courier.

Rooted plants in pots are transported on Danish trolleys for smaller containers, or ISPM 15 15-certified pallets, or individually in pots for larger containers.

The preparation of the commodities for export is carried out inside the nurseries in a closed environment, e.g. packing shed, except for the specimen trees, which are prepared outside in an open field due to their dimensions.

Plants are transported by lorry (size dependent on load quantity). Sensitive plants will occasionally be transported by temperature-controlled lorry if weather conditions during transit are likely to be very cold.

4 | IDENTIFICATION OF PESTS POTENTIALLY ASSOCIATED WITH THE COMMODITY

The search for potential pests associated with selected *Prunus* species, rendered 3257 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.

Seventy EU-quarantine species that are reported to use either of the selected *Prunus* species were evaluated (Table 3) for their relevance of being included in this opinion.

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

a. the pest is present in the UK.
b. at least one of the selected *Prunus* species 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.

Two quarantine species, *Candidatus* Phytoplasma aurantifolia – related strains and *Scirtothrips dorsalis* and two protected zone quarantine pests *Bemisia tabaci* (European population) and *Erwinia amylovora*, are present in the UK. These are known to use at least one of the relevant *Prunus* spp. as host and could be associated with the commodity, thus were selected for further evaluation. *Meloidogyne fallax* has been reported from *P. avium*, however the host association was only tested under experimental conditions in pots. Reported infestions of *P. avium* were questioned and at a low level (den Nijs et al., 2004).

TABLE 3 Overview of the evaluation of the 70 EU-quarantine pest species known to use selected *Prunus* species as a host plant for their relevance for this opinion.

No.	Pest name according to EU legislation[a]	EPPO code	Group	Pest present in the UK	Host[b]	*Prunus* spp. confirmed as a host (reference)	Pest can be associated with the commodity[c]	Pest relevant for the opinion
1	*Acleris minuta*	ACLRMI	Insects	**No**	Pp	NHM Lepidopteran	NA	No
2	*Aleurocanthus spiniferus*	ALECSN	Insects	**No**	Pp, Pdo, Pa, Pav	EPPO	NA	No
3	*Aleurocanthus woglumi*	ALECWO	Insects	**No**	Pp, Pdo, Pa	CABI, EPPO	NA	No
4	*Anastrepha fraterculus*	ANSTFR	Insects	**No**	Pa, Pav, Pdo, Pp	CABI, EPPO	NA	No
5	*Anastrepha ludens*	ANSTLU	Insects	**No**	Pp	CABI, EPPO	NA	No
6	*Anastrepha suspensa*	ANSTSU	Insects	**No**	Pp, Pdo	CABI, EPPO	NA	No
7	*Anoplophora chinensis*	ANOLCN	Insects	**No**	Pp, Pdo, Pa, Pcf, Pi, Pis, Pto, Pav, Ppc	EPPO, CABI	NA	No
8	*Anthonomus quadrigibbus*	TACYQU	Insects	**No**	Pp, Pdo, Pa, Pcf, Pto, Pav	EPPO, CABI	NA	No
9	*Apiosporina morbosa*	DIBOMO	Fungi	**No**	Pp, Pdo, Pa, Pcf, Pi, Pis, Pto, Pav, Ppc	CABI, EPPO, USDA	NA	No
10	*Apriona cinerea*	APRICI	Insects	**No**	Pp, Pdo, Pa, Pcf, Pi, Pis, Pto, Pav, Ppc	EPPO	NA	No
11	*Apriona germari*	APRIGE	Insects	**No**	Ppc	EPPO	NA	No
12	*Aromia bungii*	AROMBU	Insects	**No**	Pp, Pdo, Pa, Pcf, Pis, Pav, Ppc	CABI, EPPO	NA	No
13	*Bactrocera dorsalis*	DACUDO	Insects	**No**	Pp, Pdo, Pa, Pcf, Pav	CABI, EPPO	NA	No
14	*Bactrocera tryoni*	DACUTR	Insects	**No**	Pa, Pav, Pcf, Pdo, Pp	CABI (online), EPPO (online)	NA	No
15	*Bactrocera zonata*	DACUZO	Insects	**No**	Pp, Pdo, Pa	CABI, EPPO	NA	No
16	*Bemisia tabaci* (European population)	BEMITA	Insects	**Yes**	Pp, Pcf	CABI	Yes	Yes
17	*Candidatus* Phytoplasma aurantifolia-related strains (Pear decline Taiwan II, Crotalaria witches' broom phytoplasma, Sweet potato little leaf phytoplasma [PHYP39])	PHYP39	Phytoplasma	**Yes**	Pp	EPPO (online)	Yes	Yes
18	*Candidatus* Phytoplasma australiense	PHYPAU	Phytoplasma	**No**	Pp	CABI	NA	No
19	*Candidatus* Phytoplasma fraxini	PHYPFR	Phytoplasma	**No**	Pp	EPPO (online)	NA	No
20	*Candidatus* Phytoplasma phoenicium	PHYPPH	Phytoplasma	**No**	Pp, Pdo, Pa	CABI, EPPO	NA	No
21	*Candidatus* Phytoplasma ziziphi	PHYPZI	Phytoplasma	**No**	Pp, Pav, Pa	EPPO	NA	No
22	*Carposina sasakii*	CARSSA	Insects	**No**	Pp, Pdo, Pa, Pcf, Pi, Pis, Pto, Pav, Ppc	CABI, EPPO, NHM Lepidopteran	NA	No
23	*Cherry rosette virus*	CRV000	Viruses	**No**	Pav	EPPO	NA	No
24	*Choristoneura rosaceana*	CHONRO	Insects	**No**	Pp, Pa, Pav	NHM Lepidopteran, CABI, EPPO	NA	No
25	*Conotrachelus nenuphar*	CONHNE	Insects	**No**	Pp, Pdo, Pa, Pav	CABI, EPPO	NA	No
26	*Cuerna costalis*	CUERCO	Insects	**No**	Pp	CABI, EPPO	NA	No
27	*Diabrotica undecimpunctata undecimpunctata*	DIABUN	Insects	**No**	Pp, Pdo, Pa	EPPO	**NA**	No

TABLE 3 (Continued)

No.	Pest name according to EU legislation[a]	EPPO code	Group	Pest present in the UK	Host[b]	*Prunus* spp. confirmed as a host (reference)	Pest can be associated with the commodity[c]	Pest relevant for the opinion
28	*Eotetranychus lewisi*	EOTELE	Insects	**No**	Pp, Pdo	EPPO, Spider Mites Web	NA	No
29	*Erwinia amylovora*	ERWIAM	Bacteria	**Yes**	Pp, Pdo, Pa, Pcf, Pav	CABI, EPPO	Yes	Yes
30	*Euphranta japonica*	RHACJA	Insects	**No**	Pcf, Pav	EPPO	NA	No
31	*Eurhizococcus brasiliensis*	EURHBR	Insects	**No**	Pp, Pdo	EPPO, Scalenet	NA	No
32	*Euwallacea fornicatus* sensu lato	XYLBFO	Insects	**No**	Pp, Pcf, Pav	EPPO	NA	No
33	*Graphocephala confluens*	GRCPCF	Insects	**No**	Pp	EPPO	NA	No
34	*Graphocephala versuta*	GRCPVE	Insects	**No**	Pp	CABI	NA	No
35	*Grapholita inopinata*	CYDIIN	Insects	**No**	Pdo	EPPO	NA	No
36	*Grapholita packardi*	LASPPA	Insects	**No**	Pp, Pdo, Pa, Pcf, Pi, Pis, Pto, Pav, Ppc	CABI, EPPO, NHM Lepidopteran	NA	No
37	*Grapholita prunivora*	LASPPR	Insects	**No**	Pp, Pdo, Pa, Pcf, Pi, Pis, Pto, Pav, Ppc	CABI, EPPO, NHM Lepidopteran	NA	No
38	*Helicoverpa zea*	HELIZE	Insects	**No**	Pp, Pdo, Pa, Pcf, Pi, Pis, Pto, Pav, Ppc	CABI, EPPO, NHM Lepidopteran	NA	No
39	*Homalodisca insolita*	HOMLIN	Insects	**No**	Pp	CABI, EPPO	NA	No
40	*Homalodisca vitripennis*	HOMLTR	Insects	**No**	Pp, Pdo, Pav	CABI, EPPO	NA	No
41	*Ilarvirus APLPV*	APLPV0	Viruses	**No**	Pp, Pdo, Pa, Pcf, Pto, Pav, Ppc	CABI, EPPO	NA	No
42	*Lopholeucaspis japonica*	LOPLJA	Insects	**No**	Pdo, Pcf, Pav	Scalanet, EPPO, CABI	NA	No
43	*Lycorma delicatula*	LYCMDE	Insects	**No**	Pp, Pa, Pav	EPPO	NA	No
44	*Margarodes vitis*	MARGVI	Insects	**No**	Pp, Pdo, Pa, Pcf, Pav	EPPO	NA	No
45	*Meloidogyne chitwoodi*	MELGCH	Nematoda	**No**	Pav	Nemaplex	NA	No
46	*Meloidogyne enterolobii*	MELGMY	Nematoda	**No**	Pp	CABI	NA	No
47	*Meloidogyne fallax*[d]	MELGFA	Nematoda	**Yes**	Pav[d]	Nemaplex	No	No
48	*Naupactus leucoloma*	GRAGLE	Insects	**No**	Pp	EPPO	NA	No
49	*Nepovirus persicae*	PRMV00	Viruses	**No**	Pp, Pdo	CABI, EPPO	NA	No
50	*Oemona hirta*	OEMOHI	Insects	**No**	Pp, Pdo, Pa, Pav	CABI, EPPO	NA	No
51	*Oncometopia orbona*	ONCMUN	Insects	**No**	Pp	CABI	NA	No
52	*Phymatotrichopsis omnivora*	PHMPOM	Fungi	**No**	Pp, Pdo, Pa	CABI, EPPO, USDA	NA	No
53	*Popillia japonica*	POPIJA	Insects	**No**	Pp, Pdo, Pa, Pcf, Pav	CABI, EPPO	NA	No
54	*Rhagoletis pomonella*	RHAGPO	Insects	**No**	Pp, Pdo, Pa, Pcf, Pav	CABI, EPPO	NA	No
55	*Robigovirus robigomaculae*	CRMAV0	Viruses	**No**	Pav	EPPO	NA	No
56	*Robigovirus tortifoliae*	CTLAV0	Viruses	**No**	Pa, Pav	EPPO	NA	No
57	*Saperda candida*	SAPECN	Insects	**No**	Pp, Pdo, Pa, Pcf, Pav	EPPO	NA	No
58	*Scirtothrips aurantii*	SCITAU	Insects	**No**	Pp	EPPO	NA	No

(Continues)

TABLE 3 (Continued)

No.	Pest name according to EU legislation[a]	EPPO code	Group	Pest present in the UK	Host[b]	*Prunus* spp. confirmed as a host (reference)	Pest can be associated with the commodity[c]	Pest relevant for the opinion
59	*Scirtothrips dorsalis*	SCITDO	Insects	**Yes**	Pp, Pa, Pto, Pav	CABI	Yes	Yes
60	*Spodoptera frugiperda*	LAPHFR	Insects	**No**	Pp	CABI, EPPO, NHM Lepidopteran	NA	No
61	*Spodoptera litura*	PRODLI	Insects	**No**	Pp, Pdo	NHM Lepidopteran	NA	No
62	*Thaumatotibia leucotreta*	ARGPLE	Insects	**No**	Pp, Pdo, Pa	CABI, EPPO, NHM Lepidopteran	NA	No
63	*Thrips palmi*	THRIPL	Insects	**No**	Pp, Pdo	EPPO	NA	No
64	*Trichovirus persicae*	PCMV00	Viruses	**No**	Pp, Pdo, Pa, Pcf, Pto, Pav	CABI, EPPO	NA	No
65	*Trirachys sartus*	AELSSA	Insects	**No**	Pp, Pdo, Pa, Pcf, Pto	EPPO, CABI	NA	No
66	*Xanthomonas arboricola pv. pruni*	XANTPR	Bacteria	**No**	Pp, Pdo, Pa, Pcf, Pto, Pav	CABI, EPPO	NA	No
67	*Xiphinema americanum* sensu stricto	XIPHAA	Nematoda	**No**	Pp, Pav, Ppc	EPPO	NA	No
68	*Xiphinema bricolense*	XIPHBC	Nematoda	**No**	Pp	EPPO	NA	No
69	*Xiphinema rivesi*	XIPHRI	Nematoda	**No**	Pp, Pdo, Pav, Ppc	CABI, EPPO	NA	No
70	*Xylella fastidiosa*	XYLEFA	Bacteria	**No**	Pp, Pdo, Pa, Pcf, Pav	CABI, EPPO	NA	No

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

[b]*P. armeniaca* (Pa) *or P. avium* (Pav) or *P. cerasifera* (Pcf) or *P. domestica* (Pdo) or *P. incisa* (Pi) or *P. insititia* (Pis), or *P. persica* (Pp) or *P. pseudoceraus* (Ppc), *P. tomentosa* (Pto).

[c]NA - Not assessed.

[d]Uncertain association.

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

The information provided by the UK, integrated with the search EFSA performed, was evaluated in order to assess whether there are other potentially relevant pests of selected *Prunus* spp. present in the country of export. For these potential pests that are non-regulated 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 the UK;
b. the pest is (i) absent or (ii) has a limited distribution in the EU;
c. at least one of the selected *Prunus* species is a host of the pest;
d. one or more life stages of the pest can be associated with the specified commodity;
e. the pest may have an impact in the EU.

Pest species were excluded from further evaluation when at least one of the conditions listed above (a–e) was not met. Details can be found in the Appendix D (Microsoft Excel® file).

Of the evaluated pests not regulated in the EU, two were selected for further evaluation because these met all the selection criteria (*Colletotrichum aenigma* and *Eulecanium excrescens*). More information on these pests can be found in the pest datasheets (Appendix A).

4.3 | Overview of interceptions

Data on the interception of harmful organisms on plants of selected *Prunus* species can provide information on some of the organisms that can be present on selected *Prunus* species despite the current measures taken. According to EUROPHYT online (accessed on 8 January 2025) and TRACES online (accessed on 8 January 2025) there were no interceptions of plants for planting of selected *Prunus* species from the UK destinated to the EU Member States due to presence of harmful organisms between the years 1998 and the 2025 (January).

4.4 | Summary of pests selected for further evaluation

The pests identified to be present in the UK and having potential for association with the commodities destined for export are listed in Table 4.

The effectiveness of the risk mitigation measures applied to the commodity was evaluated.

TABLE 4 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	*Bemisia tabaci* (European population)	BEMITA	*Bemisia tabaci* Genn. (European populations)	Hemiptera Aleyrodidae	INS	Protected Zone EU Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072
2	*Candidatus* Phytoplasma aurantifolia – related strains	PHYP39	*Candidatus* Phytoplasma aurantifolia – related strains (Pear decline Taiwan II, Crotalaria witches' broom phytoplasma, Sweet potato little leaf phytoplasma [PHYP39])	Acholeplasmatales Acholeplasmataceae	PHY	EU Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072
3	*Colletotrichum aenigma*	COLLAE	NA	Glomerellales Glomerellaceae	FUN	Non regulated
4	*Erwinia amylovora*	ERWIAM	*Erwinia amylovora*	Enterobacterales Erwiniaceae	BAC	Protected Zone EU Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072

(Continues)

TABLE 4 (Continued)

Number	Current scientific name	EPPO code	Name used in the EU legislation	Taxonomic information	Group	Regulatory status
5	*Eulecanium excrescens*	EULCEX	NA	Hemiptera Coccidae	INS	Non regulated
6	*Scirtothrips dorsalis*	SCITDO	*Scirtothrips dorsalis* Hood	Thysanoptera Thripidae	INS	EU Quarantine Pest according to Commission Implementing Regulation (EU) 2019/2072

4.5 | List of potential pests not further assessed

The Panel highlighted two species (*Diplodia vulgaris* and *Eriophyes emarginatae*) for which the taxonomy, presence in the UK, and the impact on relevant *Prunus* spp. are uncertain (Appendix C).

5 | RISK MITIGATION MEASURES

For the six selected pests (Table 5 the Panel assessed the possibility that they could be present in *Prunus* spp. nursery and assessed the probability that pest freedom of a consignment is achieved by the proposed risk mitigation measures acting on the pest under evaluation.

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

5.1 | Possibility of pest presence in the export nurseries and production areas

For these six pests (Table 4) the Panel evaluated the likelihood that the pest could be present in a *Prunus* nursery by evaluating the possibility that the commodities in the export nursery are infested either by:

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

5.2 | Risk mitigation measures applied in the UK

With the dossier and additional information provided by the UK, the Panel summarised the risk mitigation measures (see Table 5) that are proposed in the production nurseries.

TABLE 5 Overview of proposed risk mitigation measures for selected *Prunus* spp. plants designated for export to the EU from the UK.

No.	Risk mitigation measure	Implementation in United Kingdom
1	Certified material	All nurseries are registered as professional operators with the UK NPPO, either by the Animal and Plant Health Agency (APHA) in England and Wales, or by the Science and Advise for Scottish Agriculture (SASA) and are authorised to issue UK plant passports.
2	Phytosanitary certificates	APHA (England and Wales) or SASA (Scotland) inspectors monitor the pests and diseases during crop certification and passport policy. Phytosanitary certificates are only issued if the commodity meets the required plant health standards after inspection and/or testing according to appropriate official procedures.
3	Cleaning and disinfection of facilities, tools and machinery	General hygiene measures are undertaken as part of routine nursery production, including disinfection of tools and equipment between batches/lots. Tools are disinfected after operation on a stock and before being used on a different plant species. The tools are dipped and wiped with a clean cloth between trees to reduce the risk of virus and bacterial transfer between subjects. Virkon S is commonly used.
4	Rouging and pruning	Leaves, prunings and weeds are all removed from the nursery to reduce the number of overwintering sites for pests and diseases. No further details are available.

TABLE 5 (Continued)

No.	Risk mitigation measure	Implementation in United Kingdom
5	Pesticide application, biological and mechanical control	According to the dossier crop protection is achieved using a combination of measures including approved plant protection products, biological control or physical measures. Plant protection products are only used when necessary and records of all plant protection treatments are kept. Example of the plant protection products used during the production: for mildew /rust /botrytis – Amylo × (*Bacillus amyloliquefaciens*), Systhane (Myclobutanil), Cosine (cyflufenamid) and for aphids & whitefly – Gazelle (acetamiprid), Decis (deltamethrin). No further details are available.
6	Surveillance and monitoring	The UK carries out surveys for Regulated Quarantine pests. This will include the following: *Xanthomonas arboricola* pv. *pruni*, *Candidatus phytoplasma prunorum, Erwinia amylovora* and *Nepovirus nicotianae* (Tobacco ringspot virus). UK plant health inspectors monitor all producers for pests and diseases during crop certification and passporting inspections. In addition, the PHSI (in England and Wales) carry out a programme of Quarantine Surveillance in registered premises, inspecting plants grown and moving within the UK market. Similar arrangements operate in Scotland. UK surveillance is based on visual inspection with samples taken from symptomatic material, and where appropriate, samples are also taken from asymptomatic material (e.g. plants, tubers, soil, watercourses). For sites with the likelihood of multiple pest and host combinations (e.g. ornamental and retail sites) they make use of standard method for site selection and visit frequency, whereby clients are assessed taking into account business activity, size of business and source material, so for example a large propagator using third country material receives 10 visits per year whilst a small retailer selling locally sourced material is visited once every second year. Where pest-specific guidelines are absent, inspectors select sufficient plants to give a 95% probability of detecting symptoms randomly distributed on 1.5% of plants in a batch/consignment. For inspections of single hosts, possibly with multiple pests, survey site selection is often directed to specific locations identified by survey planners. In the dossier it is stated that in the last 3 years, there has been a substantial level of inspection of registered *Prunus* producers, both in support of the Plant Passporting scheme (checks are consistent with EU legislation, with a minimum of one a year for authorised operators) and as part of the Quarantine Surveillance programme (Great Britain uses the same framework for its surveillance programme as the EU). During production, in addition to the general health monitoring of the plants by the trained staff of nurseries, official growing season inspections are undertaken by the UK Plant Health Service at an appropriate time, taking into consideration factors such as the likelihood of pest presence and growth stage of the crop. Where appropriate this could include sampling and laboratory analysis. Official sampling and analysis could also be undertaken nearer to the point of export depending on the type of analysis and the import requirements of the country being exported to. Samples are generally taken on a representative sample of plants, in some cases however, however, where the consignment size is quite small all plants are sampled. Magnification equipment is provided to all inspectors as part of their standard equipment and is used during inspections when appropriate. Once all other checks have been completed a final pre-export inspection is undertaken as part of the process of issuing a phytosanitary certificate. These inspections are generally undertaken as near to the time of export as possible, usually within 1–2 days and not more than two 2 weeks before export. Phytosanitary certificates are only issued if the commodity meets the required plant health standards after inspection and/or testing according to appropriate official procedures. The inspection procedure outlined above is set out in a standard operating procedure, different procedures are in place for different commodity types. Action on findings: the protocol is to treat the plants, if they are on site for a sufficient period of time or, if that is not possible, to destroy any plants infected or infested by pests. All other host plants in the nursery would also be treated. A phytosanitary certificate for export will not be issued until the UK Plant Health inspectors confirm that the plants are free from pests.
7	Sampling and laboratory testing	Assessments are normally made based on visual examinations, but samples may be taken for laboratory analysis to get a definitive diagnosis. Samples of pests and plants showing any suspicious symptoms are routinely sent to the laboratory for testing.
8	Root washing	Bare root plants are washed prior to export to remove the soil.
9	Refrigeration and temperature control	Plants are transported by lorry (size dependent on load quantity). Sensitive plants will occasionally be transported by temperature-controlled lorry if weather conditions during transit are likely to be very cold.
10	Pre-consignment inspection	Separate to any official inspection, plant material is checked by growers for plant health issues prior to dispatch.

5.3 | 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.

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 5.3.1–5.3.6). The outcome of the EKE regarding pest freedom after the evaluation of the proposed risk mitigation measures is summarised in the Section 5.3.7.

5.3.1 | Overview of the evaluation of *Bemisia tabaci* (European population)

Rating of the likelihood of pest freedom	**Pest free with few exceptional cases to Almost always pest free** (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest -ree single potted plants	***9986*** out of 10,000 plants	***9990*** out of 10,000 plants	***9993*** out of 10,000 plants	***9997*** out of 10,000 plants	***9999*** out of 10,000 plants
Proportion of infested single potted plants	***1*** out of 10,000 plants	***3*** out of 10,000 plants	***7*** out of 10,000 plants	***10*** out of 10,000 plants	***14*** out of 10,000 plants
Proportion of pest-free bundled bare root plants	***9993*** out of 10,000 bundles	***9995*** out of 10,000 bundles	***9997*** out of 10,000 bundles	***9999*** out of 10,000 bundles	***10,000*** out of 10,000 bundles
Proportion of infested bundled bare root plants	***0*** out of 10,000 bundles	***1*** out of 10,000 bundles	***3*** out of 10,000 bundles	***5*** out of 10,000 bundles	***7*** out of 10,000 bundles
Summary of the information used for the evaluation	**Possibility that the pest could become associate with the commodity** The pest is present in the UK, with few occurrences but continuously intercepted. UK outbreaks of *B. tabaci* have been restricted to greenhouses. *Prunus cerasifera* and *P. persica* are reported as hosts (Bayhan et al., 2006). Only commodities reported to have leaves when exported were considered as a possible pathway and further assessed. **Measures taken against the pest/pathogen and their efficacy** The relevant proposed measures are: (i) Inspection, certification and surveillance, (ii) Sampling and laboratory testing, (iii) Cleaning and disinfection of facilities, tools and machinery, (iv) pesticide application and (v) Pre-consignment inspection. **Interception records** There are no records of interceptions on *Prunus* spp. plants from UK. There were four interceptions of *B. tabaci* from the UK in 2007 and 2025 on other plants already planted likely produced under protected conditions (EUROPHYT, online). **Shortcomings of current measures/procedures** Low infestation may remain unnoticed during visual inspection. **Main uncertainties** • Possibility of development of the pest outside greenhouses in UK. • Pest abundance in the nursery and the surroundings. • The precision of surveillance and the efficiency of measures targeting the pest. • Whether the pest and the symptoms on the lower (abaxial) side of leaves are visible during inspections.				

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

5.3.2 | Overview of the evaluation of *Candidatus* Phytoplasma aurantifolia – related strains

Rating of the likelihood of pest freedom	**Almost always pest free** (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free plants	***9999*** out of 10,000 plants	***9999*** out of 10,000 plants	***9999.5*** out of 10,000 plants	***10,000*** out of 10,000 plants	***10,000*** out of 10,000 plants
Proportion of infested plants	***0*** out of 10,000 plants	***0*** out of 10,000 plants	***0.5*** out of 10,000 plants	***1*** out of 10,000 plants	***1*** out of 10,000 plants

(Continued)

Summary of the information used for the evaluation	**Possibility that the pest could become associate with the commodity** Phytoplasmas are efficiently transmitted by grafting of infected scions on healthy plants, as well as by phloem feeder insect vectors. The phytoplasma transmission process consists of acquisition of the pathogen during feeding on an infected plant, a latent period in the insect, during which the phytoplasma crosses the midgut barrier, multiplies within the insect body and colonises its salivary glands and inoculation of the bacterium during feeding on a healthy plant. According to EFSA pest categorisation of the non-EU phytoplasmas of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L., *Prunus* spp. is a host of 'Ca. P. aurantifolia'-related strains (EFSA PLH Panel, 2020). In the UK, one report indicating 50 (57%) of 88 Japanese knotweed (*Reynoutria japonica)* plants showed obvious symptoms, at one location (Reeder et al., 2010). These strains were closest to Crotalaria witches' broom phytoplasma and sweet potato little leaf phytoplasma, thus confirming the presence of a *Candidatus* Phytoplasma aurantifolia-related strain. No other findings have been reported. **Measures taken against the pest and their efficacy** The relevant proposed measures are: (i) Inspection, certification and surveillance, (ii) Sampling and laboratory testing, (iii) Cleaning and disinfection of facilities, tools and machinery, (iv) Removal of soil and plant debris from roots (washing), (v) Pesticide application and (vi) Pre-consignment inspection. **Interception records** There are no records of interceptions from UK. **Shortcomings of current measures/procedures** No regular surveys are conducted of the pathogen and undetected presence of *Ca* P. aurantifolia-related strains during inspections may contribute to the spread of plants infected by *Ca* P. aurantifolia-related strains. **Main uncertainties** • The presence of latent and quiescent infections. • Which insects can vector the phytoplasma, and their presence in the UK. • Whether isolates from *Reynoutria japonica* can infect *Prunus* spp.

For more details, see relevant pest data sheet on *Candidatus* Phytoplasma aurantifolia-related strain (Section A.2 in Appendix A).

5.3.3 | Overview of the evaluation of *Colletotrichum aenigma*

Rating of the likelihood of pest freedom	**Almost always pest free** (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free single potted plants	***9993*** out of 10,000 plants	***9995*** out of 10,000 plants	***9997*** out of 10,000 plants	***9999*** out of 10,000 plants	***10,000*** out of 10,000 plants
Proportion of infested single potted plants	***0*** out of 10,000 plants	***1*** out of 10,000 plants	***3*** out of 10,000 plants	***5*** out of 10,000 plants	***7*** out of 10,000 plants
Proportion of pest-free bare root plants	***9998*** out of 10,000 bundles	***9998*** out of 10,000 bundles	***9999*** out of 10,000 bundles	***9999.5*** out of 10,000 bundles	***10,000*** out of 10,000 bundles
Proportion of infested bare root plants	***0*** out of 10,000 bundles	***0.5*** out of 10,000 bundles	***1*** out of 10,000 bundles	***2*** out of 10,000 bundles	***2*** out of 10,000 bundles
Proportion of pest-free bundles of graftwood	***9996*** out of 10,000 bundles	***9997*** out of 10,000 bundles	***9998*** out of 10,000 bundles	***9999*** out of 10,000 bundles	***10,000*** out of 10,000 bundles
Proportion of infested bundles of graftwood	***0*** out of 10,000 bundles	***1*** out of 10,000 bundles	***2*** out of 10,000 bundles	***3*** out of 10,000 bundles	***4*** out of 10,000 bundles
Summary of the information used for the evaluation	**Possibility that the pest could become associate with the commodity** *Colletotrichum aenigma* has been isolated from *Prunus avium* in China (Chethana et al., 2019). *C. aenigma* can develop on leaves and cause a disease referred to as Glomerella leaf spot. *Colletotrichum aenigma* has been reported in the UK (Baroncelli et al., 2015). **Measures taken against the pest and their efficacy** (i) Inspection, certification and surveillance, (ii) Sampling and laboratory testing, (iii) Cleaning and disinfection of facilities, tools and machinery, (iv) removal of plant residues (v) Pesticide application and (vi) Pre-consignment inspection. **Interception records** There are no records of interceptions from UK. **Shortcomings of current measures/procedures** The undetected presence of *C. aenigma* during inspections may contribute to the spread of plants infected by *C. aenigma*. **Main uncertainties** • Latent or quiescent infections of *C. aenigma* cannot be detected. • *Colletotrichum aenigma* is not under official surveillance in UK, as it does not meet criteria of quarantine pest for the UK. The actual distribution of the pest in the UK is uncertain.				

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

5.3.4 | Overview of the evaluation of *Erwinia amylovora*

Rating of the likelihood of pest freedom	**Pest free with few exceptional cases to Pest free with some exceptional cases** (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free single potted plants	***9956*** out of 10,000 bundles	***9970*** out of 10,000 bundles	***9980*** out of 10,000 bundles	***9990*** out of 10,000 bundles	***9997*** out of 10,000 bundles
Proportion of infested single potted plants	***3*** out of 10,000 bundles	***10*** out of 10,000 bundles	***20*** out of 10,000 bundles	***30*** out of 10,000 bundles	***44*** out of 10,000 bundles
Proportion of pest-free bare root plants	***9968*** out of 10,000 bundles	***9977*** out of 10,000 bundles	***9986*** out of 10,000 bundles	***9993*** out of 10,000 bundles	***9998*** out of 10,000 bundles
Proportion of infested bare root plants	***2*** out of 10,000 bundles	***7*** out of 10,000 bundles	***14*** out of 10,000 bundles	***23*** out of 10,000 bundles	***32*** out of 10,000 bundles
Proportion of pest-free bundles of graftwood	***9978*** out of 10,000 bundles	***9985*** out of 10,000 bundles	***9991*** out of 10,000 bundles	***9996*** out of 10,000 bundles	***9999*** out of 10,000 bundles
Proportion of infested bundles of graftwood	***1*** out of 10,000 bundles	***4*** out of 10,000 bundles	***9*** out of 10,000 bundles	***15*** out of 10,000 bundles	***22*** out of 10,000 bundles
Summary of the information used for the evaluation	**Possibility that the pest/pathogen could enter exporting nurseries** *Erwinia amylovora* is reported to have a restricted distribution in UK. However, the status in England, where the nurseries indicated in the dossier are located, is widespread, therefore one could expect that this bacterium is present in the surrounding areas of these nurseries. *Prunus* spp. Crepel et al. (1999) is not a major host, however there are few reports on *P. armeniaca* and *P. persica* being a host of *E. amylovora*. This pathogen may overwinter in buds, which then become source of inoculum. Bacteria can enter host plants through natural openings such as nectaries or stomata, and, after multiplication in these organs, bacteria can invade peduncles, shoots, leaves and immature fruits. Plants for planting, especially grafted rootstocks, might be latently infected by the pathogen and become the main source of introduction of fire blight in pathogen-free areas (EFSA PLH Panel, 2014). **Measures taken against the pest/pathogen and their efficacy** Prevention and control as provided by DEFRA for *Malus* nursieries could also be effective against *E. amylovora in Prunus* orchards. **Interception records** There are no records of interceptions from the UK. **Shortcomings of current measures/procedures** Latent or quiescent infections may be present since they would not be detected by visual inspections. **Main uncertainties** • The pest pressure in the surrounding area of the nurseries is unknown. • In case diagnostics of symptomatic samples are carried out, it is not clear how the sampling is done and which diagnostic protocol is used.				

For more details, see the relevant pest data sheet on *E. amylovora* (Section A.4 in Appendix A).

5.3.5 | Overview of the evaluation of *Eulecanium excrescens* for all the commodity types

Rating of the likelihood of pest freedom	**Pest free with few exceptional cases to Almost always pest free** (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free single potted plants	***9981*** out of 10,000 plants	***9985*** out of 10,000 plants	***9990*** out of 10,000 plants	***9995*** out of 10,000 plants	***9999*** out of 10,000 plants
Proportion of infested single potted plants	***1*** out of 10,000 plants	***5*** out of 10,000 plants	***10*** out of 10,000 plants	***15*** out of 10,000 plants	***19*** out of 10,000 plants
Proportion of pest-free bare root plants	***9988.5*** out of 10,000 bundles	***9991*** out of 10,000 bundles	***9994*** out of 10,000 bundles	***9997*** out of 10,000 bundles	***9999*** out of 10,000 bundles
Proportion of infested bare root plants	***1*** out of 10,000 bundles	***3*** out of 10,000 bundles	***6*** out of 10,000 bundles	***9*** out of 10,000 bundles	***11.5*** out of 10,000 bundles
Proportion of pest-free bundles of graftwood	***9993*** out of 10,000 bundles	***9995*** out of 10,000 bundles	***9997*** out of 10,000 bundles	***9998.5*** out of 10,000 bundles	***10,000*** out of 10,000 bundles
Proportion of infested bundles of graftwood	***0*** out of 10,000 bundles	***1.5*** out of 10,000 bundles	***3*** out of 10,000 bundles	***5*** out of 10,000 bundles	***7*** out of 10,000 bundles

(Continued)

Summary of the information used for the evaluation	**Possibility that the pest could become associate with the commodity** *Eulecanium excrescens* is present in the UK as introduced species with restricted distribution to the Greater London Area; outside this area, the pest has been reported only in a few localities of the neighbouring county of Hertfordshire (Salisbury et al., 2010). The organism has been found at numerous sites in London and is likely to have been present in the UK since at least 1998–2000. *Eulecanium excrescens* may be more widespread in the UK (MacLeod and Matthews, 2005; Malumphy, 2005). **Measures taken against the pest and their efficacy** The relevant proposed measures are: (i) Inspection, certification and surveillance, (ii) Sampling and laboratory testing, (iii) Cleaning and disinfection of facilities, tools and machinery, (iv) Removal of soil from roots (washing), (v) Pesticide application and (vi) Pre-consignment inspection. **Interception records** There are no records of interceptions from the UK. **Shortcomings of current measures/procedures** The overlooked specimens of *E. excrescens* during visual inspections may contribute to the spread of the scale. **Main uncertainties** • Symptoms caused by the presence of *E. excrescens* may be overlooked at the beginning of the infestation, when scale density is low. • The presence of early stages (crawlers) of *E. excrescens* cannot be detected easily. *Eulecanium excrescens* is not under official surveillance in UK, as it does not meet criteria of quarantine pest for the UK. It is uncertain how many other UK sites may be infested though being undetected.

For more details, see the relevant pest data sheet on *E. excrescens* (Section A.5 in Appendix A).

5.3.6 | Overview of the evaluation of *Scirtothrips dorsalis*

Rating of the likelihood of pest freedom	**Almost always pest free** (based on the Median)				
Percentile of the distribution	5%	25%	Median	75%	95%
Proportion of pest-free plants of all the commodity types	***9999*** out of 10,000 plants	***9999*** out of 10,000 plants	***9999.5*** out of 10,000 plants	***10,000*** out of 10,000 plants	***10,000*** out of 10,000 plants
Proportion of infested plants of all the commodity types	***0*** out of 10,000 plants	***0*** out of 10,000 plants	***0.5*** out of 10,000 plants	***1*** out of 10,000 plants	***1*** out of 10,000 plants
Summary of the information used for the evaluation	**Possibility that the pest could enter exporting nurseries** *Scirtothrips dorsalis* was found for the first time in the UK in December 2007 in a greenhouse (Palm House) at Royal Botanic Garden Kew in South England (Scott-Brown et al., 2018). The widespread presence of the pest is doubtful in the UK. The adults fly and can be spread by the wind from the greenhouse where it was detected to the surroundings of the nurseries. The pest is extremely polyphagous and *Prunus* spp. is reported as a host of *S. dorsalis* (Muraoka, 1988; Ohkubo, 1995). There are host species in the surroundings of the nurseries. An initial infestation of the pest could go undetected because symptoms are unspecific. **Measures taken against the pest/pathogen and their efficacy** The relevant proposed measures are: (i) Inspection, certification and surveillance, (ii) Sampling and laboratory testing, (iii) Cleaning and disinfection of facilities, tools and machinery, (iv) Removal of soil from roots (washing) and (v) Pesticide application, (vi), Pre-consignment inspection. **Interception records** There are no records of interceptions from UK. **Shortcomings of current measures/procedures** Detection can be difficult, especially of pupa in the soil and requires expert identification. **Main uncertainties** • Pest presence in the nursery and the surroundings. • Host suitability of *Prunus* spp. to the pest. • The precision of the surveillance measures.				

For more details, see relevant pest data sheet on *Scirtothrips dorsalis* (Section A.6 in Appendix A).

5.3.7 | Outcome of expert knowledge elicitation

Table 6 and Figure 11 show the outcome of the EKE regarding pest freedom after the evaluation of the proposed risk mitigation measures for all the evaluated pests.

Figure 12 provides an explanation of the descending distribution function describing the likelihood of pest freedom after the evaluation of the proposed risk mitigation measures for selected *Prunus* spp. plants designated for export to the EU for *B. tabaci* (European population), Ca. phytoplasma aurantifolia – related strain, *C. aenigma*, *E. amylovora*, *E. excrescens*, *S. dorsalis*.

TABLE 6 Assessment of the likelihood of pest freedom following evaluation of current risk mitigation measures against *Bemisia tabaci* (European population), *Candidatus* Phytoplasma aurantifolia – *related strains, Colletotrichum aenigma, Eulecanium excrescens, Scirtothrips dorsalis* on selected *Prunus* species 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	Bacteria	*Erwinia amylovora* (Potted)						**LM**		**U**
2	Bacteria	*Erwinia amylovora* (Bare root)						**LM**		**U**
3	Bacteria	*Erwinia amylovora* (Graftwood)						**L**	**M**	**U**
	Fungi	*Colletotrichum aenigma* (Potted)							**L**	**MU**
4	Fungi	*Colletotrichum aenigma* (Bare root)								**LMU**
5	Fungi	*Colletotrichum aenigma* (Graftwood)								**LMU**
6	Insects	*Eulecanium excrescens* (Potted)						**L**	**M**	**U**
	Insects	*Eulecanium excrescens* (Bare root)						**L**	**M**	**U**
	Insects	*Eulecanium excrescens* (Graftwood)							**L**	**MU**
	Insects	*Bemisia tabaci* (Potted)						**L**	**M**	**U**
	Insects	*Bemisia tabaci* (Bare root)							**L**	**MU**
	Phytoplasma	Ca. Phytoplasma aurantifolia-related strains, all commodities								**LMU**
	Insects	*Scirtothrips dorsalis*, all commodities								**LMU**

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

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

PANEL B

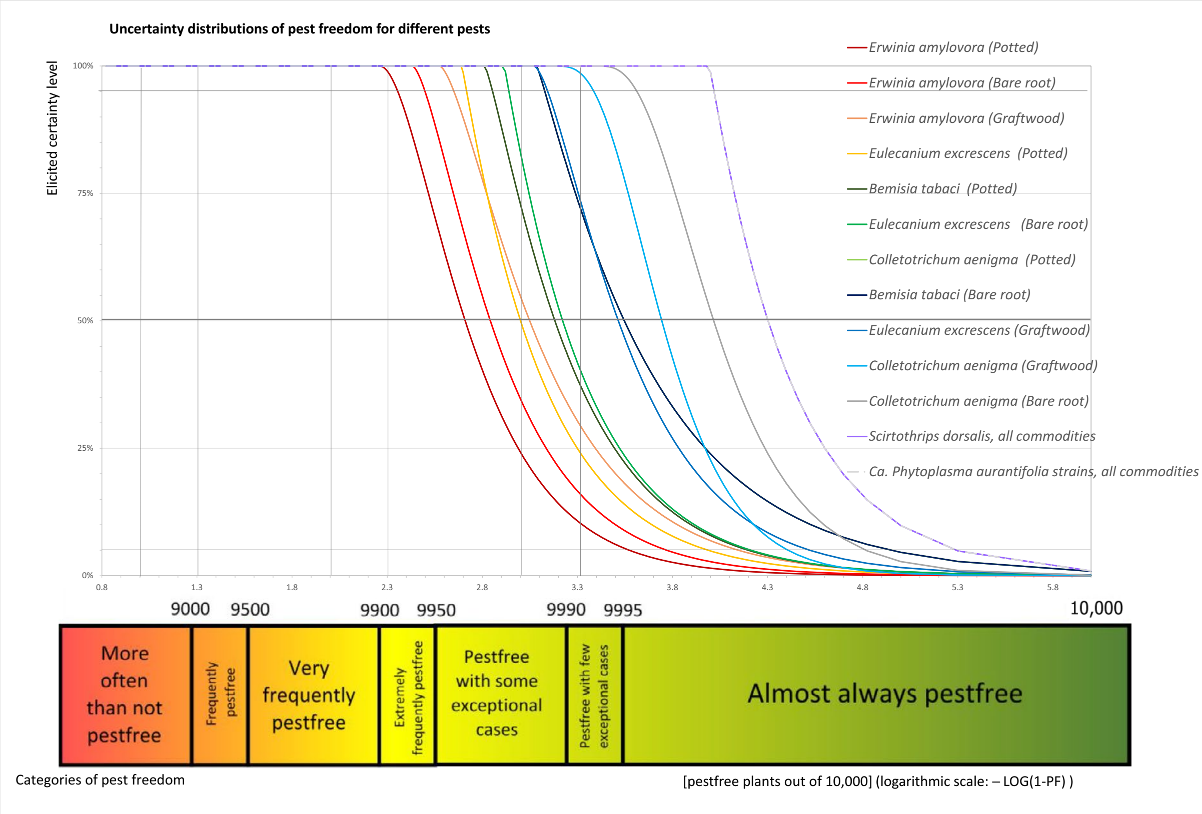

FIGURE 11 Elicited certainty levels (*y*-axis) of the number of pest-free relevant *Prunus* spp. commodities (*x*-axis; log-scaled) out of 10,000 designated for export to the EU from the UK for all evaluated pests visualised as descending distribution function. Horizontal lines indicate the percentiles (starting from the bottom 5%, 25%, 50%, 75%, 95%). The Panel is 95% confident that *9956* (*Erwinia amylovora* – potted plants), *9968* (*Erwinia amylovora* – bare root plants), 9978 (*Erwinia amylovora* – graftwood) *9980*, – (*Eulecanium excrescens* – potted plants), *9986* (*Bemisia tabaci* – potted plants), *9988.5* (*Eulecanium excrescens* – bare root plants), *9993* (*Colletotrichum aenigma* – potted plants), *9993* (*Bemisia tabaci* – bare root plants), *9993*, – (*Eulecanium excrescens* – graftwood), *9996* (*Colletotrichum aenigma* – graftwood), *9998* (*Colletotrichum aenigma* – bare root), *10,000* (*Scirtothrips dorsalis* and Ca. Phytoplasma aurantifolia-related strain – all commodities), will be pest free.

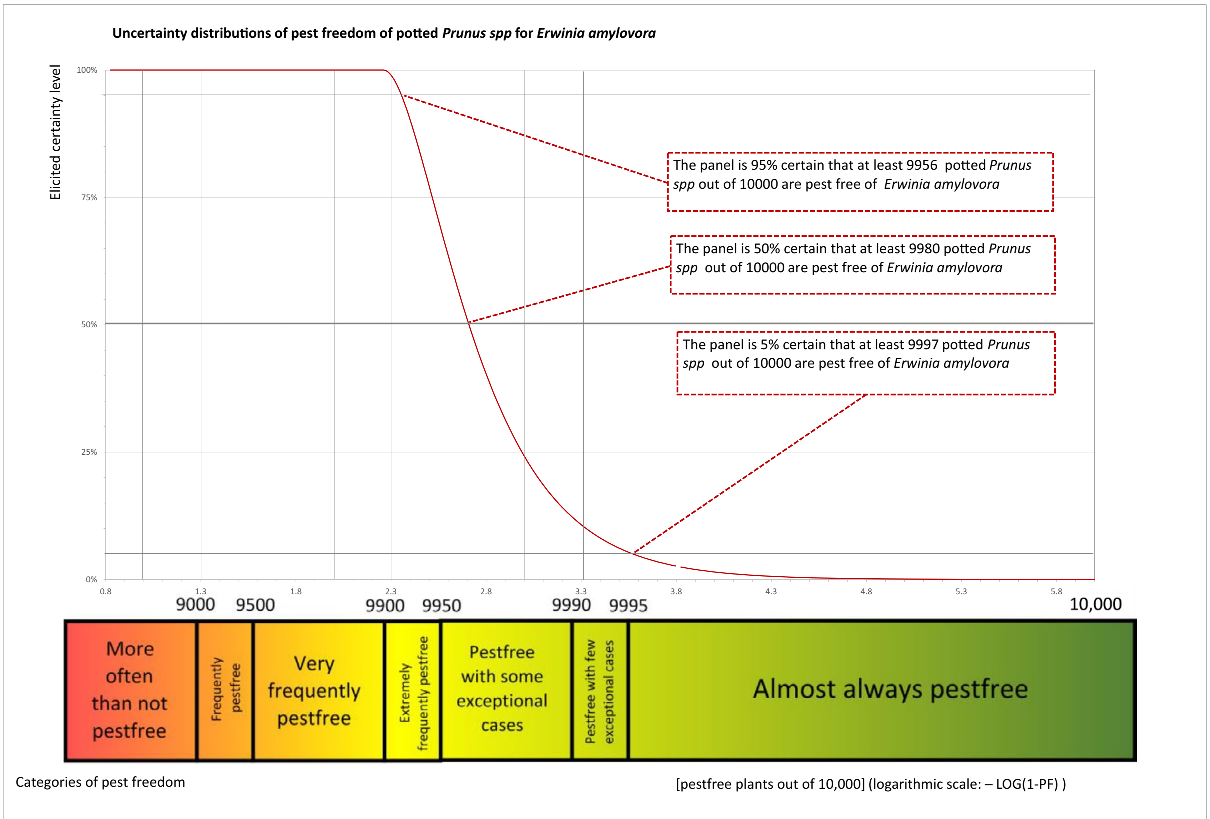

FIGURE 12 Explanation of the descending distribution function describing the likelihood of pest freedom after the evaluation of the proposed risk mitigation measures for potted plants designated for export to the EU based on based on the example of *Erwinia amylovora*.

6 | CONCLUSIONS

There are six pests identified to be present in the UK and considered to be potentially associated with plants in pots, bare root plants, graftwood of relevant *Prunus* spp. imported from the UK and relevant for the EU.

For the pests *Bemisia tabaci* (European population), *Candidatus* Phytoplasma aurantifolia – related strains, *Colletotrichum aenigma, Erwinia amylovora, Eulecanium excrescens* and *Scirtothrips dorsalis* the likelihood of pest freedom after the evaluation of the proposed risk mitigation measures for plants in pots, bare root plants and graftwood *Prunus* spp. designated for export to the EU was estimated.

For *Bemisia tabaci* (European population) the likelihood of pest freedom following evaluation of current risk mitigation measures was estimated as:

a. For potted *Prunus* spp. plants '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 9986 and 10,000 units per 10,000 will be free from *B. tabaci.*
b. For bare root plants of *Prunus* spp. 'Almost always pest free' 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 9993 and 10,000 units per 10,000 will be free from *B. tabaci*.

For *Ca* Phytoplasma aurantifolia – related strains, the likelihood of pest freedom following evaluation of current risk mitigation measures for all commodity types was estimated as 'Almost always pest free' with the 90% uncertainty range reaching from 'Almost always pest free' to 'Almost always pest free'. The EKE indicated, with 95% certainty, that between 9999 and 10,000 units per 10,000 will be free from *Ca* phytoplasma aurantifolia-related strains.

For *Colletotrichum aenigma* (European population) the likelihood of pest freedom following evaluation of current risk mitigation measures was estimated as:

a. For potted *Prunus* spp. plants 'Almost always pest free' with the 90% uncertainty range reaching from 'Pest free with few exceptional cases' to 'Almost always pest free'. The EKE indicated, with 95% certainty, that between 9993 and 10,000 units per 10,000 will be free from *C. aenigma*.
b. For bare root plants of *Prunus* spp. 'Almost always pest free' with the 90% uncertainty range reaching from 'Almost always pest free' to 'Almost always pest free'. The EKE indicated, with 95% certainty, that between 9998 and 10,000 units per 10,000 will be free from *C. aenigma*.
c. For graftwood of *Prunus* spp. 'Almost always pest free' with the 90% uncertainty range reaching from 'Almost always pest free' to 'Almost always pest free'. The EKE indicated, with 95% certainty, that between 9996 and 10,000 units per 10,000 will be free from *C. aenigma*.

For *Erwinia amylovora* the likelihood of pest freedom following evaluation of current risk mitigation measures was estimated as:

a. For potted *Prunus* spp. plants '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 9956 and 10,000 units per 10,000 will be free from *E. amylovora*.
b. For bare root plants of *Prunus* spp. '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 9968 and 10,000 units per 10,000 will be free from *E. amylovora*.
c. For graftwood of *Prunus* spp. '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 9978 and 10,000 units per 10,000 will be free from *E. amylovora*.

For *Eulecanium excrescens* the likelihood of pest freedom following evaluation of current risk mitigation measures was estimated as:

a. For potted plants *Prunus* spp. plants '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 9981 and 10,000 units per 10,000 will be free from *E. excrescens*.
b. For bare root plants of *Prunus* spp. '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 9988.5 and 10,000 units per 10,000 will be free from *E. excrescens*.
c. For graftwood of *Prunus* spp. 'Almost always pest free' with the 90% uncertainty range reaching from 'Pest free with few exceptional cases' to 'Almost always pest free'. The EKE indicated, with 95% certainty, that between 9993 and 10,000 units per 10,000 will be free from *E. excrescens*.

For *Scirthotrips dorsalis*, the likelihood of pest freedom following evaluation of current risk mitigation measures for all commodity types was estimated as 'Almost always pest free' with the 90% uncertainty range reaching from 'Almost always pest free' to 'Almost always pest free'. The EKE indicated, with 95% certainty, that between 9999 and 10,000 units per 10,000 will be free from *S. dorsalis*.

GLOSSARY

Control (of a pest)	Suppression, containment or eradication of a pest population (FAO, 1995, 2024)
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, 2024)
Establishment (of a pest)	Perpetuation, for the foreseeable future, of a pest within an area after entry (FAO, 2024)
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, 2024)
Measures	Control (of a pest) is defined in ISPM 5 (FAO, 2024) as 'Suppression, containment or eradication of a pest population' (FAO, 1995). Control measures are measures that have a direct effect on pest abundance. Supporting measures are organisational measures or procedures supporting the choice of appropriate risk mitigation measures that do not directly affect pest abundance
Pathway	Any means that allows the entry or spread of a pest (FAO, 2024)
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, 2024)
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, 2024)
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, 2024)
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, 2024)

ABBREVIATIONS

APHA	Animal and Plant Health Agency
BAC	Bacteria
CABI	Centre for Agriculture and Bioscience International
DEFRA	Department for Environment, Food and Rural Affairs
EKE	Expert Knowledge Elicitation
EPPO	European and Mediterranean Plant Protection Organization
FAO	Food and Agriculture Organization
FUN	Fungi
INS	Insect
ISPM	International Standards for Phytosanitary Measures
NEM	Nematode
PHY	Phytoplasma
PLH	Plant Health
PHSI	Plant Health and Seed Inspectorate
PRA	Pest Risk Assessment
RNQPs	Regulated Non-Quarantine Pests
SASA	Science and Advice for Scottish Agriculture

REQUESTOR

European Commission

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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 via Expert Knowledge Elicitation

A.1 | *BEMISIA TABACI* (EUROPEAN POPULATIONS)

A.1.1 | Organism information

Taxonomic information	Current valid scientific name: *Bemisia tabaci* Gennadius Synonyms: *Aleurodes inconspicua*, *Aleurodes tabaci*, *Bemisia achyranthes*, *Bemisia bahiana*, *Bemisia costa-limai*, *Bemisia emiliae*, *Bemisia goldingi*, *Bemisia gossypiperda*, *Bemisia gossypiperda mosaicivectura*, *Bemisia hibisci*, *Bemisia inconspicua*, *Bemisia longispina*, *Bemisia lonicerae*, *Bemisia manihotis*, *Bemisia minima*, *Bemisia minuscula*, *Bemisia nigeriensis*, *Bemisia rhodesiaensis*, *Bemisia signata*, *Bemisia vayssieri* Name used in the EU legislation: *Bemisia tabaci* Genn. (European populations) Order: Hemiptera Family: Aleyrodidae Common name: Cassava whitefly, cotton whitefly, silver-leaf whitefly, sweet potato whitefly, tobacco whitefly Name used in the dossier: –
Group	Insects
EPPO code	BEMITA
Regulated status	The pest is listed in Annex III as EU protected zone quarantine pest *Bemisia tabaci* Gennadius (European populations) for Ireland and Sweden. *Bemisia tabaci* is included in the EPPO A2 list (EPPO, online_a). The species is a quarantine pest in Belarus, Moldova, Norway and New Zealand. It is on A1 list of Azerbaijan, Chile, Georgia, Kazakhstan, Ukraine and the United Kingdom. It is on A2 list of Bahrain, East Africa, Southern Africa, Russia, Turkey and EAEU (= Eurasian Economic Union – Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia) (EPPO, online_b).
Pest status in the UK	*Bemisia tabaci* (European populations) is present in the UK, with few occurrences (CABI, online; EPPO, online_c) and it is continuously intercepted in the UK. The intercepted populations were identified as Middle East-Asia Minor 1 (=MEAM1) and Mediterranean (=MED) (Cuthbertson, 2013). From 1998 to 2015 there were between 7 and 35 outbreaks per year of *B. tabaci* in the UK and all the findings were subject to eradication. The UK outbreaks of *B. tabaci* have been restricted to greenhouses and there are no records of the whitefly establishing outdoors during summer (Cuthbertson and Vänninen, 2015; Bradshaw et al., 2019).
Pest status in the EU	*Bemisia tabaci* (European populations) is widespread in the EU – Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia and Spain (CABI, online; EPPO, online_c). It is absent from Denmark, Estonia, Ireland, Latvia, Lithuania, Slovakia and Sweden (CABI, online; EPPO, online_c). In the EU *B. tabaci* (European populations) is mainly present in the greenhouses, with exception of Mediterranean coastal regions (Cyprus, Greece, Malta, Italy, south of France, certain parts of Spain and Portugal), where the whitefly occurs also outdoors (EFSA PLH Panel, 2013).
Host status on *Prunus* spp.	*Prunus cerasifera* and *P. persica* are reported as hosts (Bayhan et al., 2006). There is no information on whether *B. tabaci* can also attack other *Prunus* species, however the species is known to be very polyphagous (EPPO online_d).
PRA information	Available Pest Risk Assessments: • Scientific Opinion on the risks to plant health posed by *Bemisia tabaci* species complex and viruses it transmits for the EU territory (EFSA PLH Panel, 2013); • UK Risk Register Details for *Bemisia tabaci* non-European populations (DEFRA, online_a); • UK Risk Register Details for *Bemisia tabaci* European populations (DEFRA, online_b).
Other relevant information for the assessment	
Biology	*Bemisia tabaci* is a cosmopolitan whitefly present in almost all continents except for Antarctica (CABI, online; EPPO, online_c). In the literature it is reported as either native to Africa, Asia, India, North America or South America (De Barro et al., 2011). However, based on mtCO1 (mitochondrial cytochrome oxidase 1 sequence) its origin is most likely to be sub-Saharan Africa (De Barro, 2012). *B. tabaci* is a complex of at least 40 cryptic species that are morphologically identical but distinguishable at molecular level (Khatun et al., 2018). The species differ from each other in host association, spread capacity, transmission of viruses and resistance to insecticides (De Barro et al., 2011). *B. tabaci* develops through three life stages: egg, nymph (four instars) and adult (Walker et al., 2010). Nymphs of *B. tabaci* mainly feed on phloem in minor veins of the underside leaf surface (Cohen et al., 1996). Adults feed on both phloem and xylem of leaves (Walker et al., 2010, citing others). Honeydew is produced by both nymphs and adults (Davidson et al., 1994). *B. tabaci* is multivoltine with up to 15 generations per year (Ren et al., 2001). The life cycle from egg to adult requires from 2.5 weeks up to 2 months depending on the temperature (Norman et al., 1995) and the host plant (Coudriet et al., 1985). In the southern California desert on field-grown lettuce (from 27 October 1983 to 4 January 1984) *B. tabaci* completed at least one generation (Coudriet et al., 1985). In Israel the reproduction of *B. tabaci* was much reduced in winter months, but adults emerging in December survived and started ovipositing at the end of the cold season (Avidov, 1956). The most cold-tolerant stage are eggs (–2°, –6°, –10°C) and the least tolerant are large nymphs. Short periods of exposure in 0° to –6°C have little effect on mortality. As the temperature lowers to –10°C, the duration of time required to cause significant mortality shortens dramatically (Simmons and Elsey, 1995).

(Continued)

	Females can lay more than 300 eggs (Gerling et al., 1986), which can be found mainly on the underside of the leaves (CABI, online). Females develop from fertilised and males from unfertilised eggs (Gerling et al., 1986). Eggs are yellowish white and with age turn golden brown. Their size is about 0.19–0.20 mm long and 0.10–0.12 mm wide. First instar nymph is scale-like, elliptical, darker yellow in colour and about 0.26 mm long and 0.15 mm wide. First instar nymphs have legs and crawl actively on leaves before they settle down and moult through second (0.38 mm long and 0.24 mm wide), third (0.55 mm long and 0.35 mm wide) and fourth instar nymph (0.86 mm long and 0.63 mm wide) (Hill, 1969). Fourth instar nymph (=pupa) stops feeding and moults into an adult (Walker et al., 2010, citing others). Adult emerges through a 'T'-shaped rupture in the pupal case (El-Helaly et al., 1971). Adults are pale yellow and have two pairs of white wings dusted with a white waxy powder (Hill, 1969). Female is approximately 1 mm long. Males are smaller about 0.8 mm long (EFSA PLH Panel, 2013). Out of all life stages, only first instar nymphs and adults are mobile. Movement of juveniles by walking is very limited, usually within the leaf where they hatched (Price and Taborsky, 1992) or to more suitable neighbouring leaves. The average distance was estimated within 10–70 mm (Summers et al., 1996). For these reasons they are not considered to be good colonisers. On the contrary, adults can fly reaching quite long distances in a search of a permanent host. According to Cohen et al. (1988) some of the marked individuals were trapped 7 km away from the initial place after 6 days. Long-distance passive dispersal by wind is also possible (Byrne, 1999). *Bemisia tabaci* is an important agricultural pest that is able to transmit more than 121 viruses (belonging to genera Begomovirus, Carlavirus, Crinivirus, Ipomovirus and Torradovirus) and cause significant damage to food crops such as tomatoes, cucurbits, beans and ornamental plants (EFSA PLH Panel, 2013). Possible pathways of entry for *B. tabaci* are plants for planting including cuttings and rooted ornamental plants; cut flowers and branches with foliage; fruits and vegetables; human-assisted spread; natural spread such as wind (EFSA PLH Panel, 2013).	
Symptoms	**Main type of symptoms**	Main symptoms of *B. tabaci* on plants are chlorotic spotting, decrease of plant growth, deformation of fruits, deformation of leaves, intervein yellowing, leaf yellowing, leaf curling, leaf crumpling, leaf vein thickening, leaf enations, leaf cupping, leaf loss, necrotic lesions on stems, plant stunting, reduced flowering, reduced fruit development, silvering of leaves, stem twisting, vein yellowing, wilting, yellow blotching of leaves, yellow mosaic of leaves, presence of honeydew and sooty mould. These symptoms are plant responses to the feeding of the whitefly and to the presence of transmitted viruses (CABI, online; EPPO, 2004; EFSA PLH Panel, 2013).
	Presence of asymptomatic plants	Symptoms of *B. tabaci* being present on the plants are usually visible. However, *B. tabaci* is a vector of several viruses and their infection could be asymptomatic.
	Confusion with other pests	*Bemisia tabaci* can be easily confused with other whitefly species such as *B. afer*, *Trialeurodes lauri*, *T. packardi*, *T. ricini*, *T. vaporariorum* and *T. variabilis*. A microscopic slide is needed for morphological identification (EPPO, 2004). Different species of *B. tabaci* complex can be distinguished using molecular methods (De Barro et al., 2011).
Host plant range	*Bemisia tabaci* is an extremely polyphagous pest with a wide host range, including more than 1000 different plant species (Abd-Rabou and Simmons, 2010). Some of the many hosts of *B. tabaci* are *Abelmoschus esculentus, Amaranthus blitoides, Amaranthus retroflexus, Arachis hypogaea*, *Atriplex semibaccata*, *Bellis perennis, Borago officinalis*, *Brassica oleracea* var. *botrytis*, *Brassica oleracea* var. *gemmifera*, *Brassica oleracea* var. *italica*, *Bryonia dioica*, *Cajanus cajan*, *Capsella bursa-pastoris*, *Capsicum annuum*, *Citrus* spp., *Crataegus* spp., *Cucumis sativus*, *Cucurbita pepo*, *Erigeron canadensis*, *Euphorbia pulcherrima*, *Gerbera jamesonii*, *Glycine max*, *Gossypium* spp., *Gossypium hirsutum*, *Hedera helix*, *Ipomoea batatas*, *Lactuca sativa*, *Lactuca serriola*, *Lavandula coronopifolia*, *Ligustrum lucidum*, *Ligustrum quihoui*, *Ligustrum vicaryiis*, *Manihot esculenta*, *Melissa officinalis*, *Nicotiana tabacum*, *Ocimum basilicum*, *Origanum majorana*, *Oxalis pes-caprae*, *Phaseolus* spp., *Phaseolus vulgaris*, *Piper nigrum*, *Potentilla* spp., *Prunus* spp., *Rosa* spp., *Rubus fruticosus*, *Salvia officinalis*, *Salvia rosmarinus*, *Senecio vulgaris*, *Sinningia speciosa*, *Solanum lycopersicum*, *Solanum melongena*, *Solanum nigrum*, *Solanum tuberosum, Sonchus oleraceus, Stellaria media, Tagetes erecta, Taraxacum officinale, Thymus serpyllum, Urtica urens, Vitis vinifera* and many more (Bayhan et al., 2006; CABI, online; EPPO, online_c; EFSA PLH Panel, 2013; Li et al., 2011). For a full host list refer to CABI (online), EPPO (online_c), EFSA PLH Panel (2013), and Li et al. (2011).	
Reported evidence of impact	*Bemisia tabaci* (European populations) is an EU protected zone quarantine pest.	
Evidence that the commodity is a pathway	*Bemisia tabaci* is continuously intercepted in the EU on different commodities including plants for planting (EUROPHYT/TRACES-NT, online). Therefore, the commodity is a pathway for *B. tabaci*.	
Surveillance information	*Bemisia tabaci* (European populations) is present in the UK with few occurrences (CABI, online; EPPO, online_c). No specific surveillance in the nursery is carried out for this pest.	

A.1.2 | Possibility of pest presence in the nursery

A.1.2.1 | Possibility of entry from the surrounding environment

Bemisia tabaci (European populations) is present in the UK with few occurrences (location not specified) (CABI, online; EPPO, online_c) and is continuously intercepted in the UK. The UK outbreaks of *B. tabaci* have been restricted to glass-houses and there are no records of *B. tabaci* establishing outdoors during summer (Bradshaw et al., 2019; Cuthbertson and

Vänninen, 2015). Bradshaw et al. (2019) indicate that theoretically *B. tabaci* (in summertime) could complete one generation across most of Scotland, and one–three generations over England and Wales. However, the temperatures experienced during the cold days and nights during summer may be low enough to cause chilling injury to *B. tabaci*, thereby inhibiting development and preventing establishment in the UK. It is unlikely, therefore, that this pest will establish outdoors in the UK under current climate conditions.

The possible entry of *B. tabaci* from surrounding environment to the nursery may occur through adult dispersal and passively on wind currents (Cohen et al., 1988; Byrne, 1999; EFSA PLH Panel, 2013).

Bemisia tabaci is a polyphagous species that can infest a number of different plants. Suitable hosts of *B. tabaci* like *Crataegus* spp., *Hedera* spp. and *Prunus* spp. are used as hedges surrounding the nursery.

Brassicaceae and Solanaceae are cultivated as arable crops as well as *Acer* spp., *Fraxinus* spp. and *Quercus* spp. are present in woodland in the nursery surroundings.

Uncertainties

- Exact locations where the whitefly is present.
- Possibility of spread beyond the infested greenhouses.
- Possibility of the whitefly to survive the UK winter or summer in outdoor conditions.
- If the plant species traded by the other companies are grown and/or stored close to the production site.
- Presence of plant species that are not described as hosts of *Bemisia tabaci* so far.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pest to enter the nursery from the surrounding environment, even though it is only reported to be present in greenhouses. In the surrounding area suitable hosts are present and the pest can spread by wind and adult flight.

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

The United Kingdom has regulations in place for fruit plant propagating material that are in line with those of European Union, and this equivalence has been recognised in Commission Implementing Decision (EU) 2020/2219. Thus, only material fulfilling characteristics of certified, basic or CAC levels of certification, including the origin of the material, can be marketed. Plants are mainly grown from UK material although some plants may be obtained from the EU (mostly the Netherlands). This is the only source of plants obtained from abroad.

The exporting nurseries grow a range of other plant species that could serve as host of *B. tabaci*. Nurseries expected to export to the EU produce plants from grafting and budding and mother plants of *Prunus* spp. are present in the nursery.

Uncertainties

- No information is available on the provenance of new plants other than *Prunus* spp. used for plant production in the area of the nursery.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pest to enter the nursery with new plants used for plant production in the area.

Uncertainties

- No information is available on the provenance of new plants of *Prunus* spp. and other species used for plant production in the area of the nursery.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pest to enter the nursery with new plants (*Prunus* spp.) used for plant production in the area. The entry of the pest with seeds is considered as not possible.

A.1.2.3 | Possibility of spread within the nursery

Prunus spp. plants are grown in containers outdoors in the open air.

The whitefly can attack other suitable plants (such as *Prunus* spp.), mother trees, non-cultivated herbaceous plants (*Bellis perennis*, *Taraxacum officinale*) present within the nursery and hedges surrounding the nursery (*Crataegus* spp., *Hedera* spp. and *Prunus* spp.).

There are poly tunnels within the nursery used to grow early stages of plants.

The whitefly within the nursery can spread by adult flight, wind or by scions from infested mother plants. Spread within the nursery through equipment and clothing is less relevant as the distance walked is very limited and of a short duration.

Uncertainties

- Possibility of the whitefly to survive the UK winter/summer in outdoor conditions.
- Possibility that poly tunnels are used in a way that allows the pest to overwinter.

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, active flight, equipment and clothing.

A.1.3 | Information from interceptions

In the EUROPHYT/TRACES-NT database there are no interceptions of plants for planting neither from the UK nor from other countries due to the presence of *Bemisia tabaci* between the years 1995 and January 2025 (EUROPHYT/TRACES-NT, online).

There were two interceptions of *B. tabaci* from the UK in 2007 and 2015 on other plants already planted likely produced under protected conditions (EUROPHYT, 2024) and one interception on other live plants (including their roots) in October 2024 (TRACES-NT, 2024).

A.1.4 | Evaluation of the risk mitigation measures

In the table below, all risk mitigation measures currently applied in the UK are listed and an indication of their effectiveness on *B. tabaci* (European populations) is provided. The description of the risk mitigation measures currently applied in the UK is provided in Table 5.

No.	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Certified material	Yes	Evaluation: Potential *B. tabaci* infestations can be detected although low initial infestations might be overlooked. Uncertainties: • Though the plant material is regularly monitored for plant health issues by trained nursery staff, the details of the certification process are not known (e.g. number of plants, intensity of surveys and inspections, etc.).
2	Phytosanitary certificates	Yes	Evaluation: The procedures applied could be effective in detecting *B. tabaci* infestations though low initial infestations might be overlooked. Uncertainties: • Specific figures on the intensity of survey (sampling effort) are not provided.
3	Cleaning and disinfection of facilities, tools and machinery	No	
4	Pesticide application and biological control	Yes	Evaluation: Chemicals listed in the dossier (acetamiprid and deltamethrin) are applied specifically targeting whiteflies and they may be effective though chemical applications can affect biological control agents. Uncertainties: • No details are given on the pesticide application schedule. • No details are provided on abundance and efficacy of the natural enemies.
6	Surveillance and monitoring	Yes	Evaluation: It can be effective Uncertainties: • Low initial infestations (crawlers) might be overlooked.
7	Sampling and laboratory testing	Yes	Evaluation: It can be effective and useful for specific identification. Low initial infestations might be overlooked.
8	Root washing	No	
9	Refrigeration and temperature control	Yes	Uncertainties: • Reduced temperatures will only slow the insect development.
10	Pre-consignment inspection	Yes	Evaluation: It can be effective, though low initial infestations might be overlooked. Uncertainties: • Though official checks are carried out at least one per year and they may increase if growing season inspections are required, details on the intensity of the inspections are not provided.

A.1.5 | Overall likelihood of pest freedom for plants for planting in pots

A.1.5.1 | Reasoning for a scenario which would lead to a reasonably low number of infested plants for planting in pots

- The pressure of the pest in the surroundings of the nursery is very low and it is very unlikely to overwinter outdoors.
- The nursery is not an intensive plant nursery.
- The inspection should be effective because the presence of honeydew is easily detectable.

A.1.5.2 | Reasoning for a scenario which would lead to a reasonably high number of infested plants for planting in pots

- There are few occurrences of the pest and it is continuously intercepted in the UK.
- Although it is unlikely that the pest can survive or develop outdoors, polytunnels present in the nursery could host some plants that could be hosts of the pest.
- Though the inspections are conducted very often, they will fail detection of the pest inside the commodity.

A.1.5.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infested plants for planting in pots (Median)

- There is low likelihood of pressure of the pest from outside.
- The commodity is produced outdoors and the pest is unlikely to perform out of the greenhouses.
- Inspections will be successful because of the presence of honeydew and adults flying around when disturbed.

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

- The low probability of performing of the pest outdoors results in high level of uncertainties for infestation rates below the median.
- Low pest pressure from the surroundings and easy detection of honeydew gives less uncertainties for rates above the median.

A.1.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Bemisia tabaci* (European populations)

The elicited and fitted values for *Bemisia tabaci* (European population) agreed by the Panel are shown in Tables A.1–A.4 and in the Figures A.1, A.2.

TABLE A.1 Elicited and fitted values of the uncertainty distribution of pest infestation by *Bemisia tabaci* per 10,000 potted plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					3		7		10					15
EKE	0.128	0.319	0.635	1.27	2.12	3.20	4.29	6.58	9.03	10.3	11.7	13.0	14.0	14.6	15.0

Note: The EKE results is the BetaGeneral (1.0095, 1.2555, 0, 15.4) distribution fitted with @Risk version 7.6.

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

TABLE A.2 The uncertainty distribution of plants free of *Bemisia tabaci* (European populations) 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	9985					9990		9993		9997					10,000
EKE results	9985.0	9985.4	9986	9987	9988	9990	9991	9993	9996	9997	9997.9	9998.7	9999.4	9999.7	9999.9

Note: The EKE results are the fitted values.

TABLE A.3 Elicited and fitted values of the uncertainty distribution of pest infestation by *Bemisia tabaci* (European populations) per 10,000 single or bundles of bare rooted plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					1		3		5					8
EKE	0.0121	0.0431	0.113	0.296	0.606	1.07	1.59	2.84	4.31	5.13	6.02	6.80	7.44	7.79	8.02

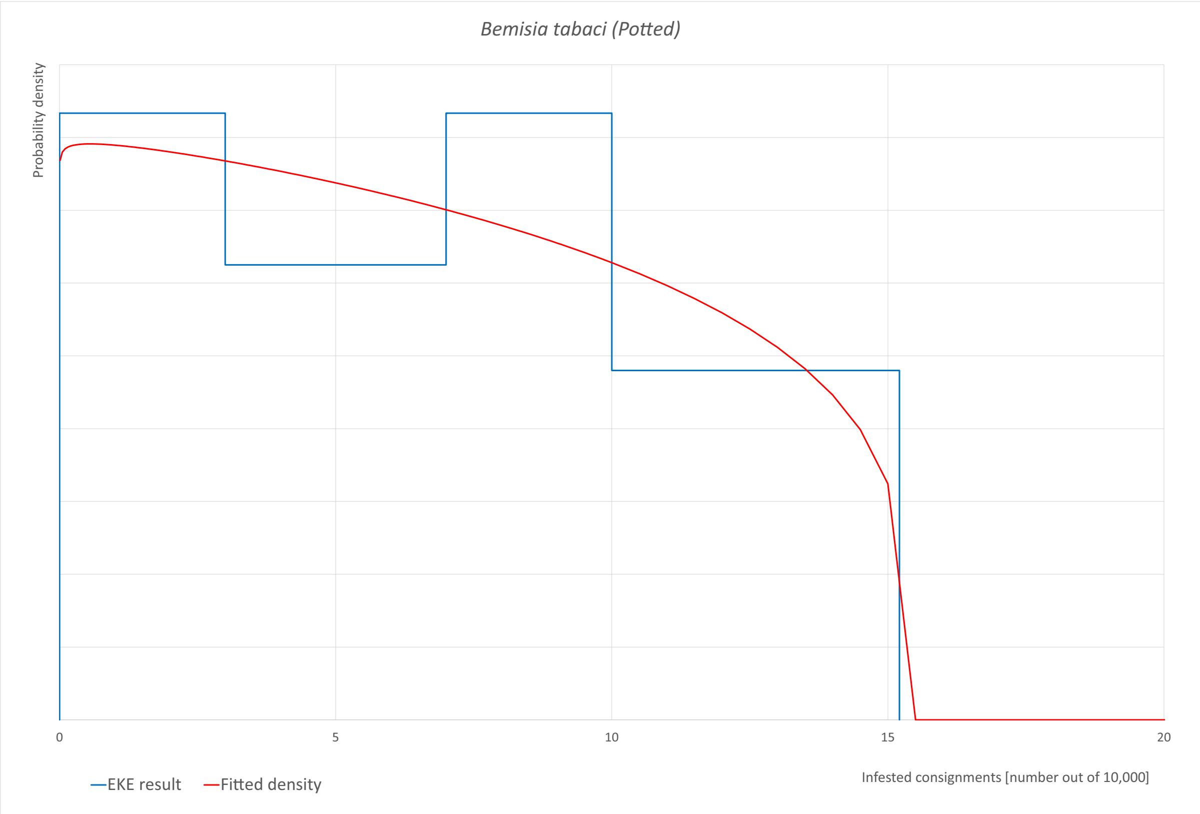
Note: The EKE results is the BetaGeneral (0.72005, 1.1194, 0, 8.2) distribution fitted with @Risk version 7.6.

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

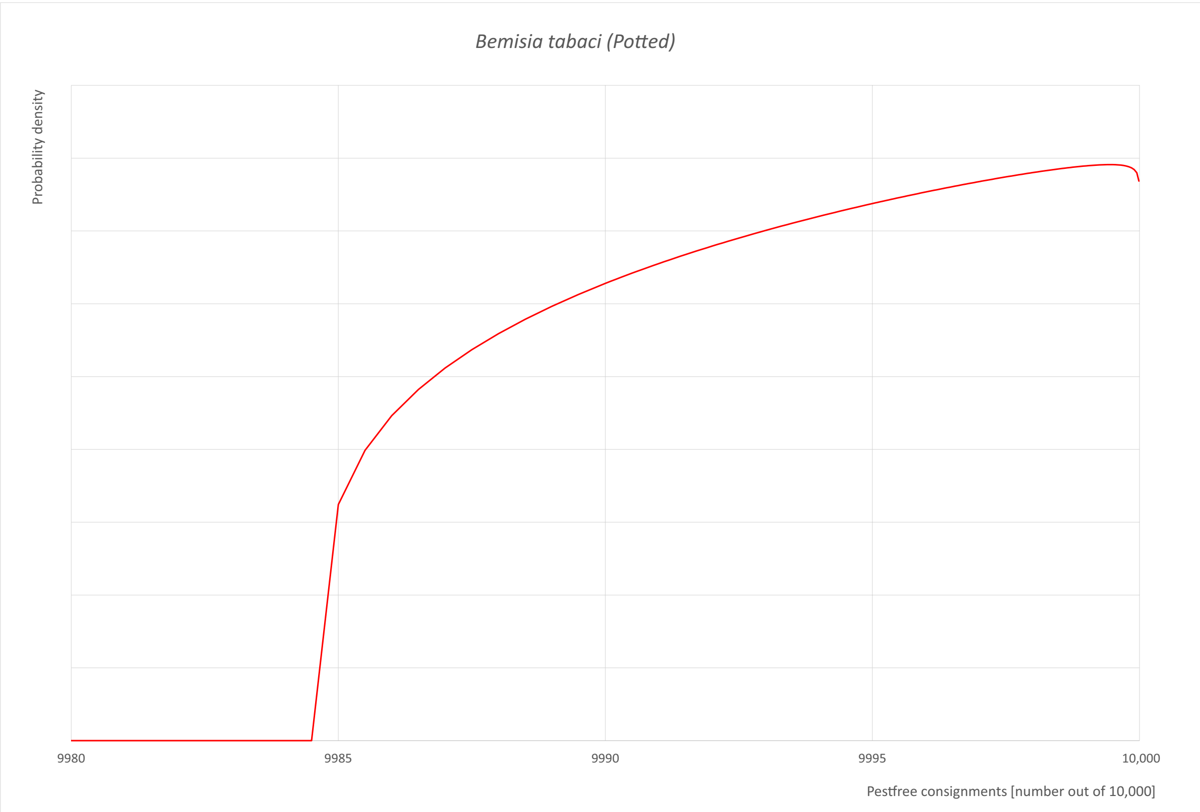
TABLE A.4 The uncertainty distribution of plants free of *Bemisia tabaci* (European populations) per 10,000 plants calculated by Table A.3.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9992					9995		9997		9999					10,000
EKE results	9992.0	9992.2	9992.6	9993.2	9994	9995	9996	9997	9998.4	9998.9	9999.4	9999.7	9999.89	9999.96	9999.99

Note: The EKE results are the fitted values.

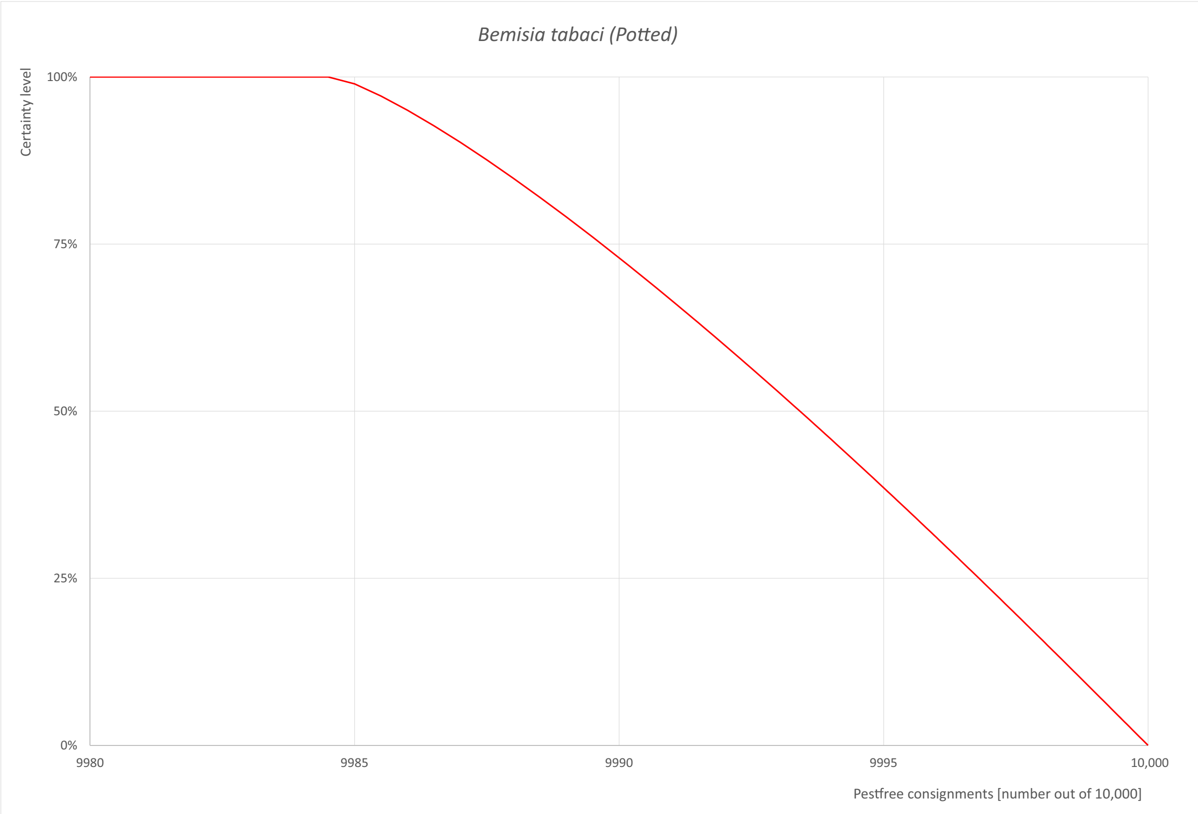


(A)



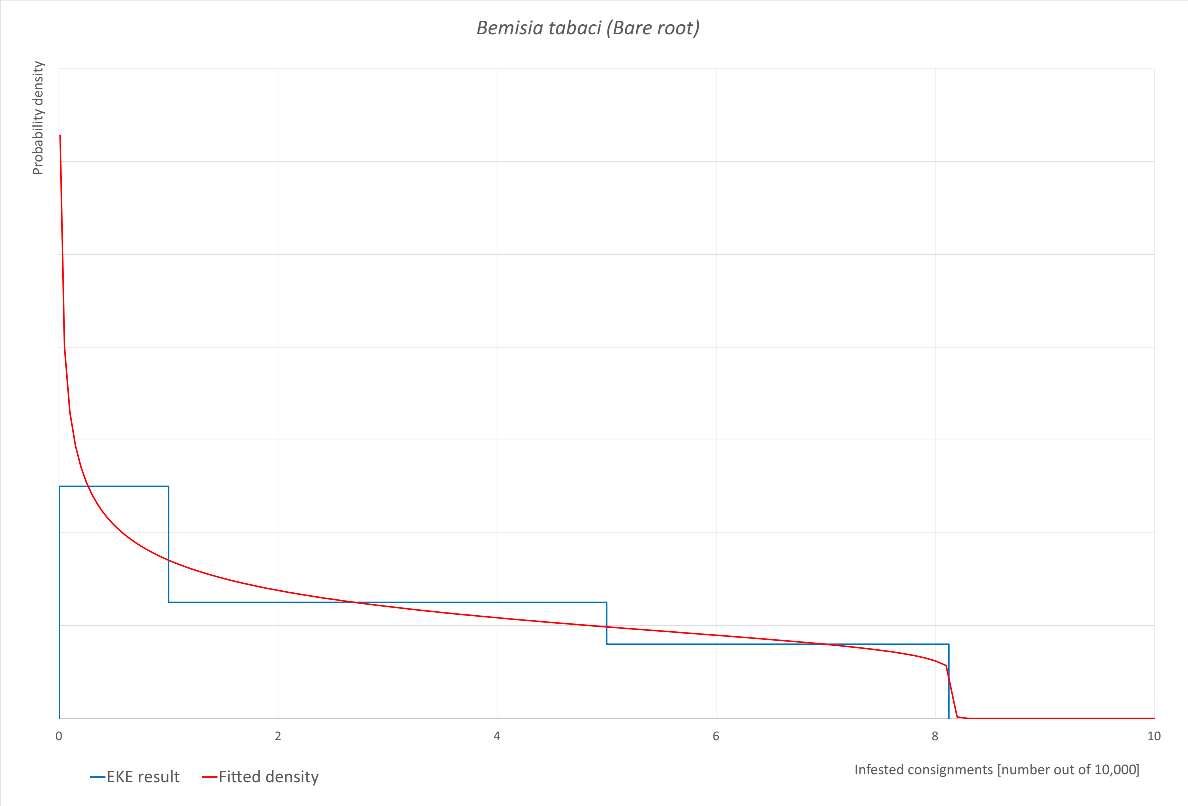
(B)

FIGURE A.1 (Continued)

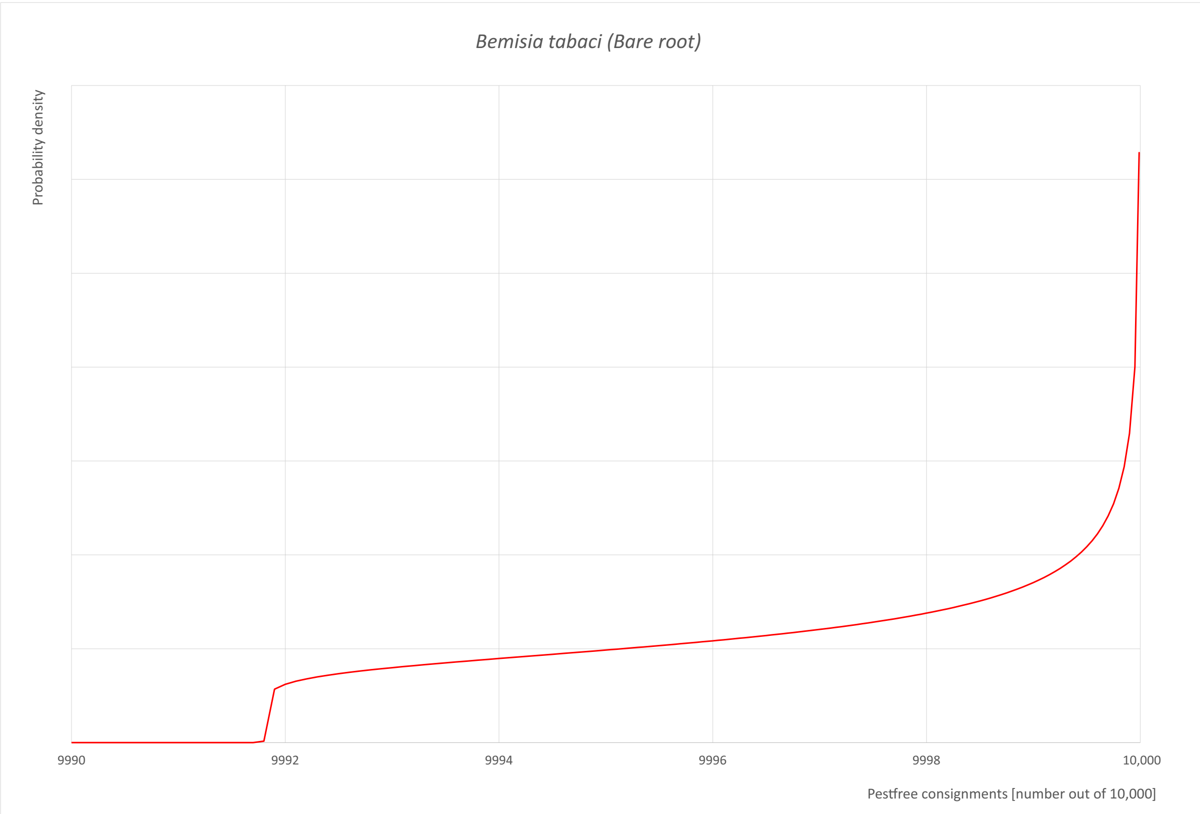


(C)

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

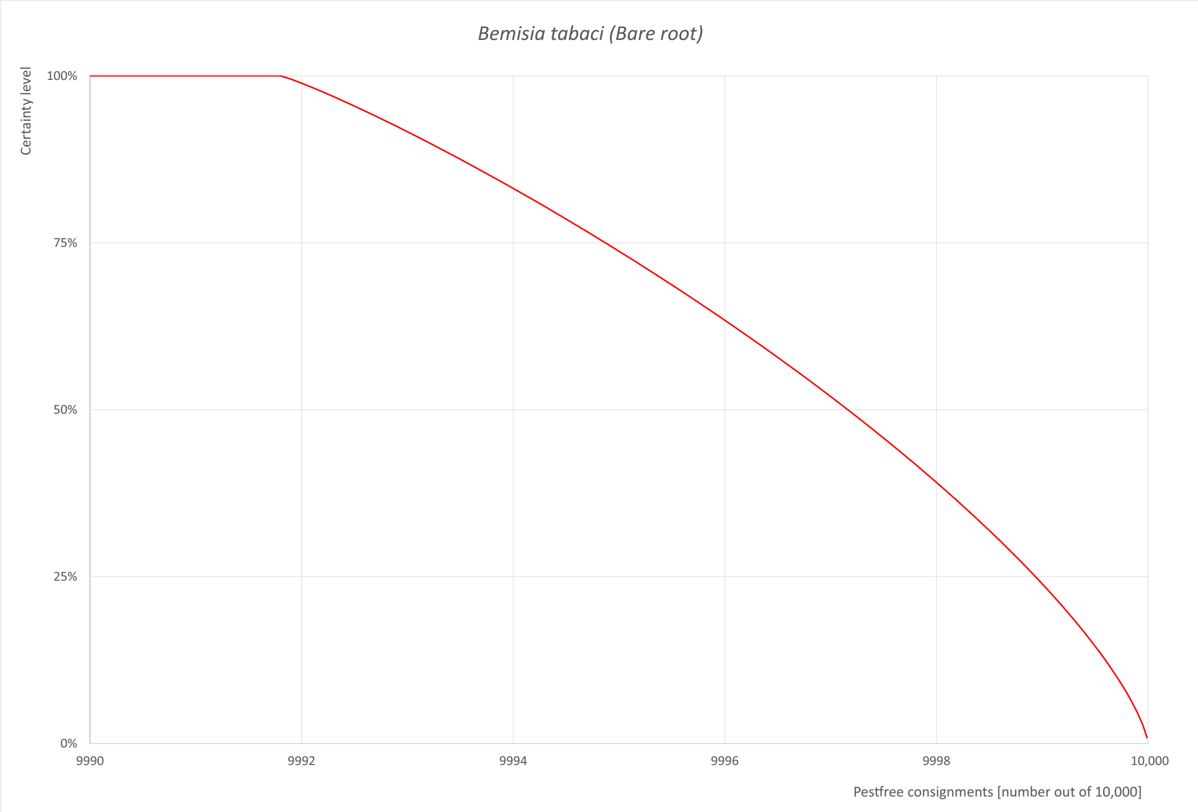


(A)



(B)

FIGURE A.2 (Continued)



(C)

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

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A.2 | *CANDIDATUS* PHYTOPLASMA AURANTIFOLIA-RELATED STRAINS

A.2.1 | Organism information

Taxonomic information	Current valid scientific name: '*Candidatus* Phytoplasma aurantifolia' related strains Zreik, Bové & Garnier Synonyms: (pear decline Taiwan II, PDTWII; Crotalaria witches' broom phytoplasma, CrWB; sweet potato little leaf, SPLL, PHYP39) Name used in the EU legislation: 'Candidatus Phytoplasma aurantifolia' related strains Name used in the Dossier: Order: Acholeplasmatales Family: Acholeplasmataceae
Group	Bacteria
EPPO code	PHYP39 EPPO codes are known only for some of the *Candidatus* Phytoplasma aurantifolia-related strains

(Continued)

Regulated status	**EU status: A1 Quarantine pest (Annex II A)** *Candidatus* Phytoplasma aurantifolia-related strains, A1 Quarantine pest (Annex II A) **Non- EU:** PHYP39: United States of America Quarantine pest Switzerland A1 list	
Pest status in UK	In the UK, where 50 (57%) of 88 Japanese knotweed (*Reynoutria japonica)* plants showed obvious symptoms, at one location (Reeder et al., 2010).	
Pest status in the EU	Greece, Portugal (EPPO GD: Present, no details), Italy (Davino et al., 2007; Paltrinieri and Bertaccini, 2007; Parrella et al., 2008; Tolu et al., 2006), UK (Reeder et al., 2010). Reports from the EPPO GD in Greece and Portugal have no further details. The pest was reported (i) in few batches of symptom-less potato plantlets obtained from two lots of seeds from different undescribed Italian locations and from unknown origins (Paltrinieri and Bertaccini, 2007); (ii) in one batch (10 insects) out of three of field-collected *Empoasca decipiens* in Italy (Parrella et al., 2008); (iii) in three field-collected *Calendula arvensis* plants, one *Solanum nigrum* plant and one *Chenopodium species* (Tolu et al., 2006)	
Host status on selected *Prunus* species	*Prunus armeniaca* (Rasoulpour et al., 2019*), Prunus persica (Zirak* et al. *2010)*	
PRA information	Based on the EFSA opinion on the pest categorisation of the non-EU phytoplasmas of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L., published in 2019, 'Ca. P. aurantifolia'-related strains are able to enter in the EU. The plant pathways (both host plants and other hosts) are partially regulated by existing legislation. The vector pathway is open. If 'Ca. P. aurantifolia'-related strains were to enter the EU, they could become established and spread. Plants for planting are the main means of spread for 'Ca. P. Aurantifolia'–related strains. The host range is not fully known. The vector ability of EU phloem feeder insects is uncertain.	
Other relevant information for the assessment		
Biology	Phytoplasmas are efficiently transmitted by grafting of infected scions on healthy plants, as well as by phloem feeder insect vectors. Phytoplasmas are transmitted by insects in the order Hemiptera. However, vector species are restricted to only a few families of the Fulgoromorpha and Cicadomorpha (most of the vector species belong to Cicadellidae and Cixiidae), and of Sternorrhyncha (Psyllidae) (Weintraub and Beanland, 2006). Within a family, some species are known to be phytoplasma vectors, while others are not. Transmission is persistent and propagative, and insects are infective for life. No transovarial transmission has been reported for the phytoplasmas categorised here. The phytoplasma transmission process consists of: acquisition of the pathogen during feeding on an infected plant, a latent period in the insect, during which the phytoplasma crosses the midgut barrier, multiplies within the insect body and colonises its salivary glands and inoculation of the bacterium during feeding on a healthy plant (EFSA PLH Panel, 2020).	
Symptoms	**Main type of symptoms**	*Prunus*: symptoms of chlorotic leafroll on one branch or on the whole crown with scattered dieback of several branches (Rasoulpour et al., 2019), little leaf, leaf rolling, rosetting, yellowing and shoot proliferation (Zirak et al., 2009b), bronzing of foliage and tattered and shot-holed leaves (Zirak et al., 2010).
	Presence of asymptomatic plants	In *Prunus* (apricot), the minimum time between inoculation and symptom expression is of 21 months (Rasoulpour et al., 2019).
	Confusion with other pests	*No information*
Host plant range	*Allium cepa, Amaranthus* spp., *Apium graveolens, Beta vulgaris* ssp. *Esculenta, Brassica chinensis, Brassica juncea, Brassica oleracea, Calendula officinalis, Callistephus chinensis, Capsicum annuum, Capsicum* spp. and *Solanum* [*Cyphomandra*] *betaceum, Cardaria draba, Carica papaya, Celosia Cicer arietinum, Cichorium intybus, Corchorus olitorius, Conocarpus erectus, Crotalaria aegyptiaca, Crotalaria juncea, Daucus carota, Dendrocalamus strictus, Reynoutria (Fallopia) japonica, Fragaria, Gerbera jamesonii, Glycine max, Gypsophila paniculata, Helianthus* spp., *Jasminum sambac, Lactuca, Linum usitatissimum, Malus* spp. (Hashami-Temeh et al., 2014), *Malvaviscus arborus, Codiaeum variegatum, Hibiscus rosa-sinensis, Passiflora edulis, Manihot esculenta, Matthiola incana, Medicago sativa, Mirabilis jalapa, Parthenium hysterophorus, Petroselinum crispum, Phaseolus vulgaris, Praxelis clematidea, Prosopis farcta* spp., *Pyrus* spp., *Prunus* spp., *Rosa* spp., *Sesamum indicum, Solanum lycopersicum, Solanum tuberosum, Stylosanthes* spp., *Trifolium repens, Vicia faba, Vitiis* spp. *Zinnia elegans* (EFSA PLH Panel, 2020; Hemmati and Nikooei, 2017).	
Reported evidence of impact	• Severe yellowing, rosetting, leaf rolling and dieback in *P. salicina*, *P. persica* and *P. armeniaca* in Iran (Rasoulpour et al., 2019; Zirak et al., 2009, 2010).	
Pathways and evidence that the commodity is a pathway	• Plants, plants for planting (EFSA PLH Panel, 2020).	
Surveillance information	*Candidatus* Phytophtora aurantifolia'-related strains have quarantine status in UK.	

A.2.2 | Possibility of pest presence in the nursery

A.2.2.1 | Possibility of entry from the surrounding environment

Natural spread would require the presence of the phytoplasma in the surrounding area, as well as an insect vector that feeds both on the source plant in the surrounding environment, as well as on Prunus in the nursery. The phytoplasma was reported once in *Reynoutria japonica* (Japanese knotweed) in the UK (Reeder et al., 2010), and the present status is 'Present, not widely distributed and under official control' (DEFRA). The distribution of this plant is widespread in the UK, though there have not been additional reports of infection by the phytoplasma after 2010. Information about which insect vectors are capable of transmitting the phytoplasma, and whether they feed on Prunus and any of the possible source plants in the surrounding area is lacking.

Uncertainties

- It is unclear if any surveillance for the disease takes place.
- It is unclear if there are source plants in the surrounding area.
- It is unclear if there is a vector that can transmit the phytoplasma to Prunus.
- It is unclear if isolates from *Reynoutria japonica* can infect *Prunus* spp.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pest/pathogen to enter the nursery from the surrounding area. The pathogens may be present in the UK. There is no information about inspections for the disease in production areas or if there are surveillance zones around (mother and production) nurseries that are also inspected for the disease. The pathogen, if present and the environmental conditions (presence of a vector), could infect plants for planting.

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

There are two possible pathways for the spread of the disease, introductions from other countries via infested material and reintroductions and spread within the country. The main long-distance pathway is mainly the import of infected nursery stock and propagative material though there have been no reports of infection of *Prunus* spp. by the phytoplasma in the UK, and only limited reports of the phytoplasma in *Prunus* spp. from other countries (Rasoulpour et al., 2019, Zirak et al., 2010).

Uncertainties

- It is unclear if isolates from *R. japonica* can infect *Prunus* spp.

Taking into consideration the above evidence and uncertainties, the Panel considers that although technically unlikely, it is possible that the pathogen could enter the nursery with new plants/seeds.

A.2.2.3 | Possibility of spread within the nursery

Spread within the nursery would require the presence of an insect vector.

Grafting could be a possible pathway since in propagation nurseries, cells of the phytoplasma are present in the phloem of the plant.

Uncertainties

- Which insects can vector the phytoplasma, and their presence in the UK is uncertain.

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

A.2.3 | Information from interceptions

There are no records of interceptions of Ca. phytoplasma aurantifolia-related strains plants for planting from the UK due to the presence of Ca. phytoplasma aurantifolia between 1998 and January 2025 (EUROPHYT, online; TRACES-NT, online).

A.2.4 | Evaluation of the risk mitigation measures

In the table below, all risk mitigation measures currently applied in UK are listed and an indication of their effectiveness on *Ca.* phytoplasma aurantifolia-related strain is provided. The description of the risk mitigation measures currently applied in UK is provided in Table 5.

No.	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Certified material	Yes	Evaluation: Potential infections could be detected, if it is not latent, though low initial infections might be overlooked. Uncertainties: • Though the plant material is regularly monitored for plant health issues by trained nursery staff, the details of the certification process are not given (e.g. number of plants, intensity of surveys and inspections, etc.). Specific figures on the intensity of survey (sampling effort) are not provided. • It is unknown how the rootstocks are produced.
2	Phytosanitary certificates	Yes	Evaluation: All starting material have phytosanitary certificates. The procedures applied could be effective in detecting infections, though low initial infections might be overlooked. Uncertainties: • Latent infections may be overlooked.
3	Cleaning and disinfection of facilities, tools and machinery	No	
4	Rouging and pruning	Yes	Evaluation: Pruning can have an effect on transmission directly reducing it by removing infected branches or contributing to infections by creating wounds. Uncertainties: • The effectiveness of the procedure of disinfection of tools and machinery is unclear. • It is not clear if pruning is taking place on a regular basis.
5	Pesticide application and biological control	No	
6	Surveillance and monitoring	Yes	Evaluation: It can be effective. Uncertainties: • Latent infections might be overlooked.
7	Sampling and laboratory testing	Yes	Evaluation: It can be effective and useful for specific identification. Uncertainties: • There is no information on which test method is used.
8	Root washing	No	
9	Refrigeration and temperature control	No	
10	Pre-consignment inspection	Yes	Evaluation: It can be effective. Uncertainties: • The effectiveness of inspection of young plants. • Low or latent infections might be overlooked.

A.2.5 | Overall likelihood of pest freedom

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

- Growers and inspectors inspect plants and are effective in detecting and discarding infected materials.
- Transport of the commodities is during the dormant stage.
- Itis a quarantine pest.
- Pest pressure is very low in the UK.

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

- Growers are not trained and misidentification with other *Phytoplasma* species could happen.
- Latent infections are common and could be overlooked.
- Possibly High pest pressure in the UK.
- Applied pesticides are not efficient in controlling the disease.

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

The Panel assumes a scenario in which infections if they should occur would be below the estimated mid point value.

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

The main uncertainty is the presence of latent infections.

A.2.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Candidatus* Phytoplasma aurantifolia-related strains

The elicited and fitted values for Ca. Phytoplasma aurantifolia-related strains agreed by the Panel are shown in Tables A.5–A.6 and in the Figure A.3.

TABLE A.5 Elicited and fitted values of the uncertainty distribution of pest infestation by *Ca*. Phytoplasma aurantifolia-related strains per 10,000 potted plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0.00					0.25		0.50		0.75					1.00
EKE	0.0106	0.0261	0.0515	0.102	0.169	0.251	0.333	0.499	0.666	0.750	0.835	0.905	0.958	0.986	1.00

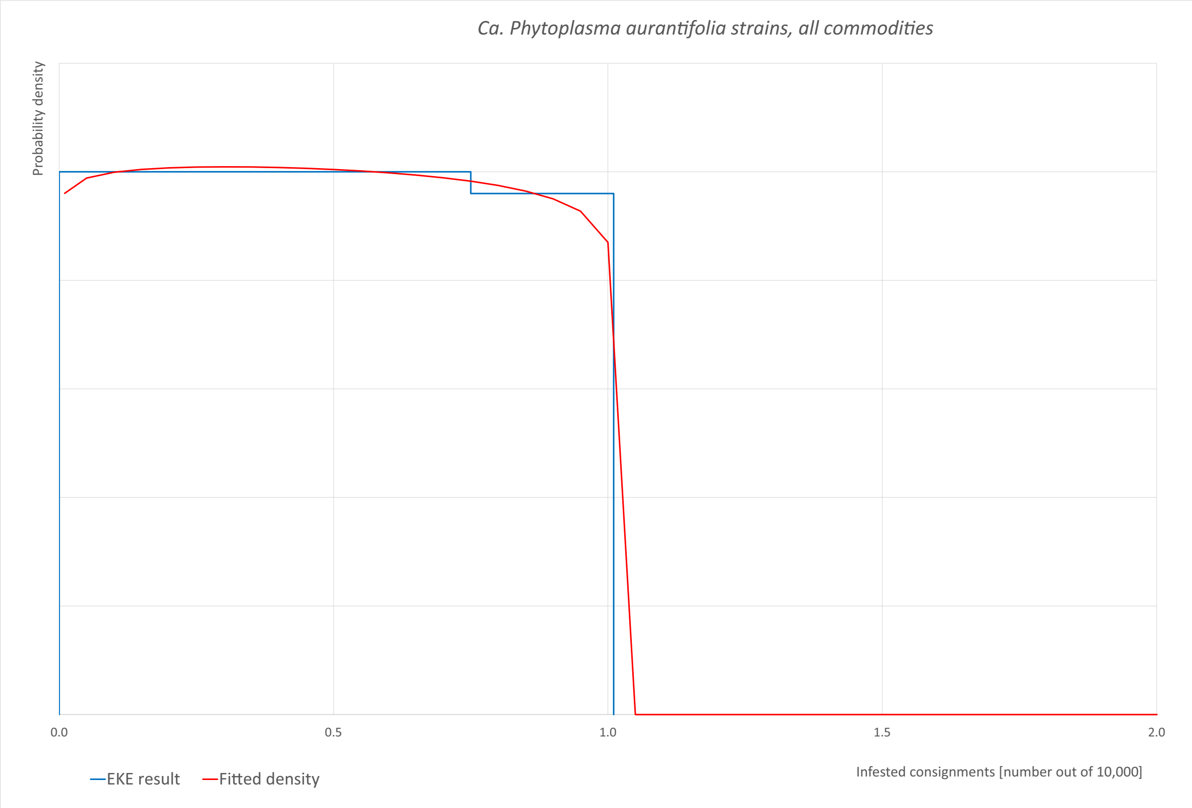
Note: The EKE results is the BetaGeneral (1.019, 1.0443, 0, 1.015) distribution fitted with @Risk version 7.6.

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

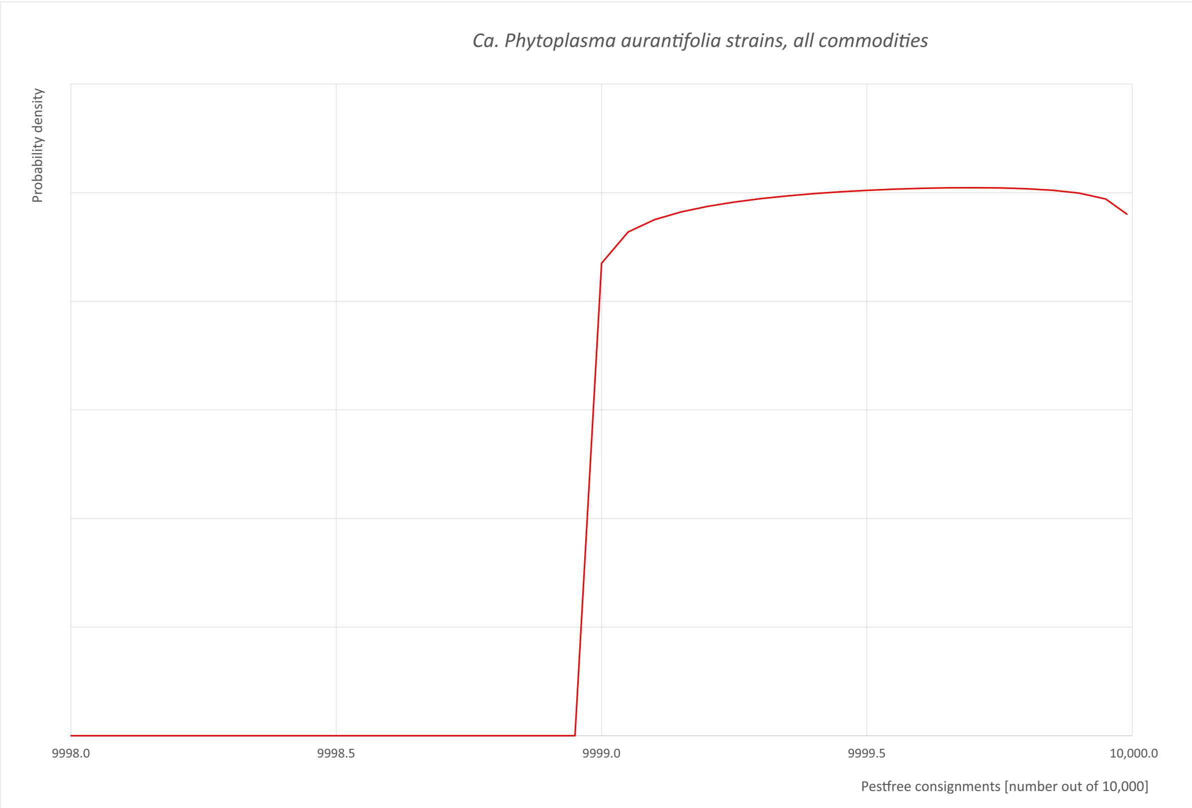
TABLE A.6 The uncertainty distribution of plants free of *Ca*. Phytoplasma aurantifolia-related strains per 10,000 potted plants calculated by Table A.5.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9999.00					9999.25		9999.50		9999.75					10000.00
EKE results	9999.00	9999.01	9999.04	9999.09	9999.16	9999.25	9999.33	9999.50	9999.67	9999.75	9999.83	9999.90	9999.95	9999.97	9999.99

Note: The EKE results are the fitted values.

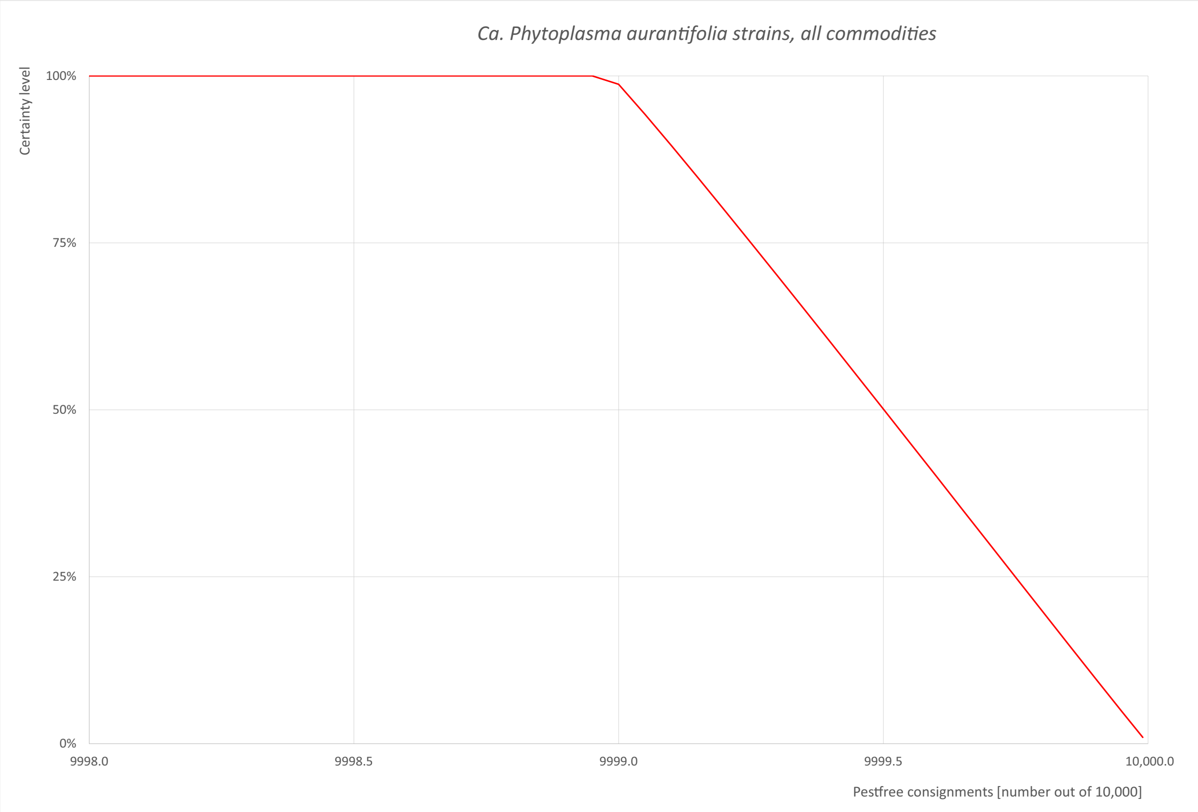


(A)



(B)

FIGURE A.3 (Continued)



(C)

FIGURE A.3 (A) Elicited uncertainty of pest infestation per 10,000 bundles of graftwood/budwood or cell- grown 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 bundles per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 bundles.

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A.3 | *COLLETOTRICHUM AENIGMA*

A.3.1 | Organism information

Taxonomic information	Current valid scientific name: *Colletotrichum aenigma* Synonyms: *Colletotrichum populi* (Farr and Rossman, online) Name used in the EU legislation: – Order: Glomerellales Family: Glomerellaceae Common name of the disease: Anthracnose and Glomerella leaf blight pathogen Name used in the Dossier: –
Group	Fungi

(Continues)

(Continued)

EPPO code	COLLAE	
Regulated status	**EU status**: N/A **Non-EU**: N/A	
Pest status in UK	*Colletotrichum aenigma* has been reported in the UK (Baroncelli et al., 2015).	
Pest status in the EU	*Colletotrichum aenigma* has been reported in Italy from: *Citrus sinensis, Olea europaea* and *Pyrus communis* (Schena et al., 2014).	
Host status on selected *Prunus* species	*Colletotrichum aenigma* has been isolated from *Prunus avium* in China (Chethana et al., 2019).	
PRA information	Available Pest Risk Assessments: – Pest categorisation of *Colletotrichum aenigma, C. alienum, C. perseae, C. siamense and C. theobromicola* (EFSA PLH Panel, 2022). – Final report for the review of biosecurity import requirements for fresh strawberry fruit from Japan (Australian Government, 2020).	
Other relevant information for the assessment		
Biology	*Colletotrichum* spp. are dispersed through asexual conidiospores which are produced on diseased plant tissue and plant debris via acervuli, but they can also, produce ascospores through sexual reproduction (Australian Government, 2020). Conidia and ascospores can be dispersed through rain drops, wind-blown rain, wind or insects. Infected nursery stock, contaminated soil, infected leaves and fruits are the main pathways. Moreover, *Colletotrichum* spp. can be distributed through asymptomatic hosts (mainly fruits) and can survive in the soil for a long period (80 days during summer, 120 days during winter) (Australian Government, 2020). *C. aenigma* mycelium can grow between 10°C and 36°C with an optimum of 28°C. *Colletotrichum* spp. development, sporulation and spread is favoured by warm, wet weather with an optimum temperature of 27°C. They can remain dormant in fruits and leaves, without causing any symptoms (quiescent period) (De Silva et al., 2017). If the sexual stage of the *Colletotrichum* spp. occurs, perithecia are formed, which can act as overwintering structures and source of inoculum. The pathogen can overwinter mainly on fresh/dry leaves and on fresh twigs.	
Symptoms	**Main type of symptoms**	Anthracnose symptoms can develop on flowers, stems, fruits, leaves and twigs (Velho et al., 2019). Leaves: – Disease on leaves referred to as Glomerella leaf spot; – Spots (from yellowish to brown discolorations); – Necrosis across or between leaf veins and at leaf tips; – Drop of leaves prematurely; – Dead or unhealthy. Shoots: – Brown or purplish lesions; – Dieback. Flowers: – Turn dark and die. Fruits: – Disease on fruits called 'bitter rot'; – Before harvest: Brown depressed lesions on fruit on the peel of young fruits which result in reduced fruit quality and fruit drop (Marais, 2004); – Lesions can become larger, darker and can show concentric rings of acervuli; – Pink spores on the surface; – Sectioning the fruit can reveal a v-shaped lesion.
	Presence of asymptomatic plants	Quiescent infections can occur in fruits and leaves. (Chen et al., 2022; Marais, 2004).
	Confusion with other pests	Due to the taxonomic re-evaluation of the *Colletotrichum* genus, the individual species can only be identified by combining morphometric characters as well as multi-locus phylogenetic analyses by DNA sequencing (EFSA PLH Panel, 2022).
Host plant range	*Colletotrichum aenigma* has previously been reported from a wide range of hosts including *Camellia sinensis*, *Citrus sinensis*, *Fragaria × ananassa*, *Malus domestica*, *Olea europaea*, *Persea americana*, *Pyrus communis*, *Pyrus pyrifolia*, *Prunus avium* and *Vitis vinifera* (Chethana et al., 2019; EFSA PLH Panel, 2022; Fu et al., 2019; Han et al., 2016; Sharma et al., 2017; Schena et al., 2014; Velho et al., 2019; Wang et al., 2016; Weir et al., 2012; Yan et al., 2015).	
Reported evidence of impact	*Colletotrichum aenigma* has been identified in association with other *Colletotrichum* species causing anthracnose and pre- and post-harvest fruit rot in several economically important crop plants.	
Pathways and evidence that the commodity is a pathway	– Infected nursery stock, contaminated soil/substrate and fruits are the main pathways (Australian Government, 2020); – The pathogen can be dispersed through spores on dead twigs, leaves and mummified fruit.	
Surveillance information	According to the information provided by the NPPO – DEFRA of the UK: – *Colletotrichum aenigma* is not included in the list of pests associated with *Prunus* spp. in the UK. According to Baroncelli et al. (2015), *C. aenigma* has been isolated from strawberry infected tissue in the UK. However, there is no further information about the distribution within the UK.	

A.3.2 | Possibility of pest presence in the nursery

A.3.2.1 | Possibility of entry from the surrounding environment

Colletotrichum spp. have a wide host range. *C. aenigma* can infect a large number of plants, including fruits, vegetables and ornamentals (EFSA PLH Panel, 2022). The major source of inoculum is from infected plant material, which can be leaves, twigs and fruit of the affected plant species. While splash dispersal from rain or irrigation water is required to dislodge the conidia from the acervuli of the fungus, subsequent drying of the water droplets can lead to air-borne inoculum, which can be further dispersed via wind. Therefore, the presence of host species such as *P. avium* in the environment of the nurseries is an important factor for the possible movement spread of inoculum into the nursery.

Uncertainties

- It is uncertain which plant species are present in private gardens in the surrounding area. There may be private gardens containing plants that can serve as hosts e.g. *Fragaria × ananassa*.
- The result of the survey is not known, and the survey itself is not specific.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pathogen to enter the nursery from the surrounding area. The pathogens can be present in the surrounding areas and the transferring rate could be enhanced by suitable environmental conditions.

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

The United Kingdom has regulations in place for fruit plant propagating material that are in line with those of European Union, and this equivalence has been recognised in Commission Implementing Decision (EU) 2020/2219.

According to the Dossier, the commodities may be grown by grafting and budding from mother stock in the nursery. Original mother stock sourced in the UK would be certified with UK plant passports, and original mother stock from EU countries (mostly Netherlands) would be certified with phytosanitary certificates.

Uncertainties

- It is uncertain how the rootstocks are produced It is not clear if the UK plant passports include analysis of *Colletotrichum* spp. in *Prunus* spp.
- Many *Colletotrichum* species can have extended hemibiotrophic or quiescent phases of their life cycles in asymptomatic plants, which can be overlooked by visual inspection (De Silva et al., 2017). Latent infections might be present in the mother plants due to an extended quiescent phase.
- It is uncertain whether propagation material of other hosts plants in the nursery is tested.

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

A.3.2.3 | Possibility of spread within the nursery

If *C. aenigma* is present within the nursery it can spread to other plants via asexual spores (conidia). Conidia are disseminated from infected plants by rain splash or wind onto healthy leaves, young fruits or blossoms (De Silva et al., 2017). The fungi continue to produce conidia throughout the season resulting in a polycyclic disease cycle and further spread of the disease within the nursery. The fungi overwinter in plant tissue or on plant debris in the soil. If the sexual stage of the *C. aenigma* occurs, perithecia are formed, which can act as overwintering structures and source of inoculum. Planting of contaminated plants of other plant species in the nursery may also contribute to the spread of the disease. Contamination of pruning tools with spores may also contribute to the spread of disease.

Many *Colletotrichum* species can have extended hemibiotrophic or quiescent phases of their life cycles in asymptomatic plants, which can be overlooked by visual inspections and lead to an unintentional spread of the disease (De Silva et al., 2017). Trained nursery staff perform regular inspections of the material and implement relevant control measures, but no details were provided.

In the dossier, it is stated that other host plant species are present within the nursery from which the *Colletotrichum* spp. (e.g. *Malus domestica, Pyrus communis, Prunus avium*), could potentially provide inoculum to the *Prunus* plants.

Uncertainties

- There is uncertainty of the length of a possible dormant phase of the *Colletotrichum* species and whether this will lead to undetected presence of *Colletotrichum* species in the exported plants and scions despite the regular inspections.
- The true host range of *C. aenigma* is unknown.

Taking the above evidence and uncertainties into consideration, the Panel considers it is likely that the pathogen could spread within the nursery.

A.3.3 | Information from interceptions

There are no records of interceptions of *Colletotrichum aenigma* plants for planting from the UK due to the presence of *C. aenigma* between 1998 and January 2025 (EUROPHYT, online; TRACES-NT, online).

A.3.4 | Evaluation of the risk mitigation measures

In the table below, all risk mitigation measures currently applied in UK are listed and an indication of their effectiveness on *C. aenigma* is provided. The description of the risk mitigation measures currently applied in UK is provided in Table 5.

No.	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Certified material	Yes	Uncertainties: – Due to the potential dormant phase of *Colletotrichum* spp., the visual inspection might be insufficient and latent infections overlooked.
2	Phytosanitary certificates	Yes	Uncertainties: – Due to the potential dormant phase of *Colletotrichum* spp., the visual inspection might be insufficient and latent infections overlooked.
3	Cleaning and disinfection of facilities, tools and machinery	Yes	Uncertainties: – The effectiveness of the cleaning and disinfection of facilities, tools and machinery is uncertain.
4	Rouging and pruning	Yes	Uncertainties: – Due to the potential dormant phase of *Colletotrichum* spp., infected plant material may be overlooked and not removed.
5	Pesticide application and biological control	Yes	Uncertainties: – Fungicide treatment may not be sufficient to remove quiescent infections.
6	Surveillance and monitoring	Yes	Uncertainties: – Due to the potential dormant phase of *Colletotrichum* spp., the visual inspection might be insufficient.
7	Sampling and laboratory testing	Yes	Uncertainties: – Due to the potential dormant phase of *Colletotrichum* spp., this procedure (visual inspection followed by laboratory test) might be insufficient.
8	Root washing	No	
9	Refrigeration and temperature control	Yes	Uncertainties: – The effect on latent or endophytic presence is unclear.
10	Pre-consignment inspection	Yes	Uncertainties: – Due to the potential dormant phase of *Colletotrichum* spp., the visual inspection might be insufficient.

A.3.5 | Overall likelihood of pest freedom

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

- Pest pressure is very low in the UK.
- There are no other host plants present in the surroundings and within nursery.
- Proper and effective application of fungicides to control fungal diseases; visual inspections are in place.
- Growers and inspectors inspect plants and are effective in detecting and discarding infected materials.
- Latent infections are rare (with leaves showing symptoms of infection if present).
- Transport of the commodities is during the dormant stage.

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

- There are other host plants present in the surroundings and within nursery.
- There is no targeted survey in the UK.
- Growers are not trained and misidentification with other *Colletotrichum* species could happen.
- Latent or quiescent infections are common and could be overlooked.
- Leaves will be present in potted plants at the time of export.
- High pest pressure in the UK.
- Applied fungicides and other measures e.g. leaning and disinfection of facilities, tools and machinery as well as the removal of plant debris may not be efficient in controlling the disease.

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

The Panel assumes a scenario in which infections if they should occur would be below the estimated mid point value.

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

The main uncertainty is the presence of latent or quiescent infections.

A.3.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Colletotrichum aenigma*

The elicited and fitted values for *Colletotrichum aenigma* agreed by the Panel are shown in Tables A.7–A.12 and in the Figures A.4–A.6.

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

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					7		15		22					30
EKE	0.279	0.703	1.41	2.85	4.79	7.21	9.65	14.6	19.7	22.3	24.9	27.0	28.6	29.5	30.0

Note: The EKE results is the BetaGeneral (0.99116, 1.0471, 0, 30.4) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested plants the pest freedom was calculated (i.e. = 10,000 – number of infested 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 *Colletotrichum aenigma* per 10,000 potted 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	9970					9978		9985		9993					10,000
EKE results	9970	9971	9971	9973	9975	9978	9980	9985	9990	9993	9995	9997	9998.6	9999.3	9999.7

Note: The EKE results are the fitted values.

TABLE A.9 Elicited and fitted values of the uncertainty distribution of pest infestation by *Colletotrichum aenigma* per 10,000 single or bundles of bare rooted plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					3		6		9					12
EKE	0.128	0.315	0.621	1.22	2.03	3.01	4.00	5.99	7.99	9.00	10.0	10.9	11.5	11.8	12.1

Note: The EKE results is the BetaGeneral (1.0223, 1.0507, 0, 12.2) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested plants the pest freedom was calculated (i.e. = 10,000 – number of infested 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 *Colletotrichum aenigma* 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	9988					9991		9994		9997					10,000
EKE results	9987.9	9988.2	9988.5	9989.1	9990.0	9991	9992	9994	9996	9997	9998.0	9998.8	9999.4	9999.7	9999.9

Note: The EKE results are the fitted values.

TABLE A.11 Elicited and fitted values of the uncertainty distribution of pest infestation by *Colletotrichum aenigma* per 10,000 bundles of graftwood/budwood ora cell grown plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0.00					1.25		2.50		3.75					5.00
EKE	0.0526	0.130	0.256	0.508	0.842	1.25	1.67	2.50	3.33	3.75	4.18	4.52	4.79	4.93	5.01

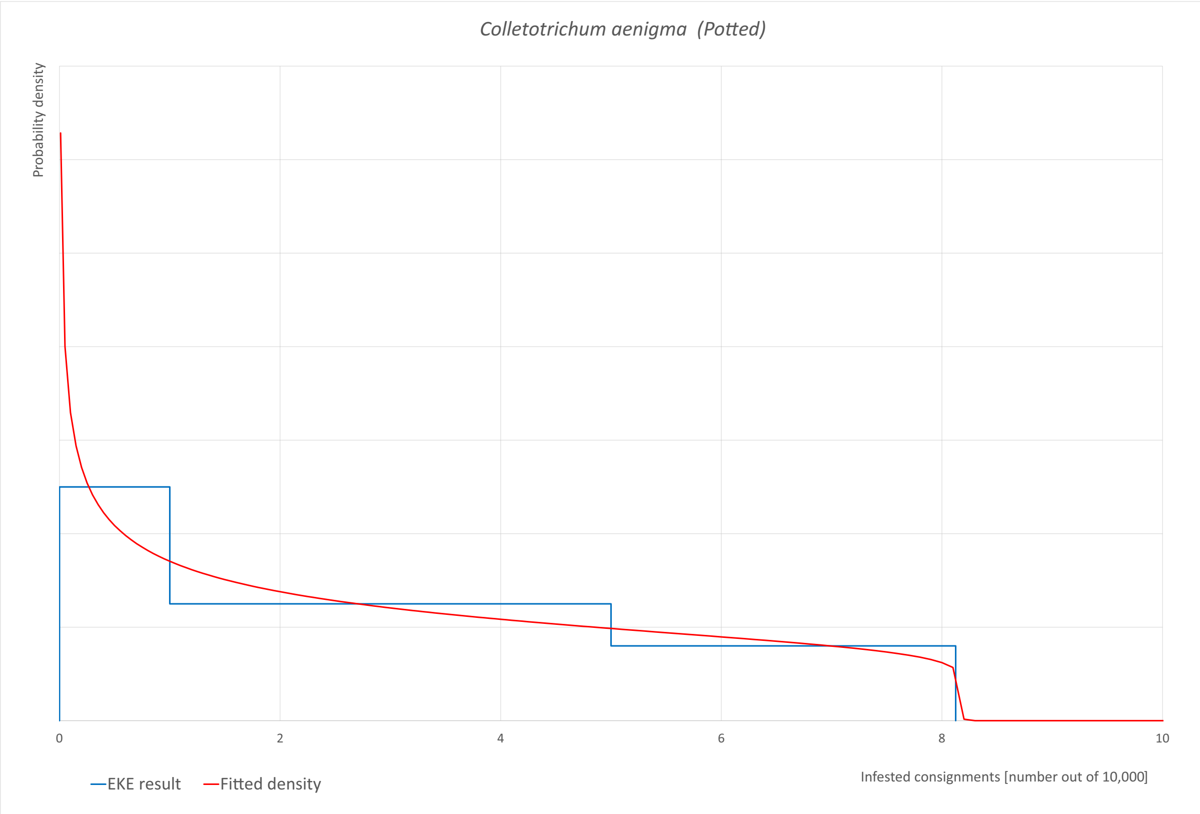
Note: The EKE results is the BetaGeneral (1.017, 1.0405, 0, 5.07) distribution fitted with @Risk version 7.6.

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

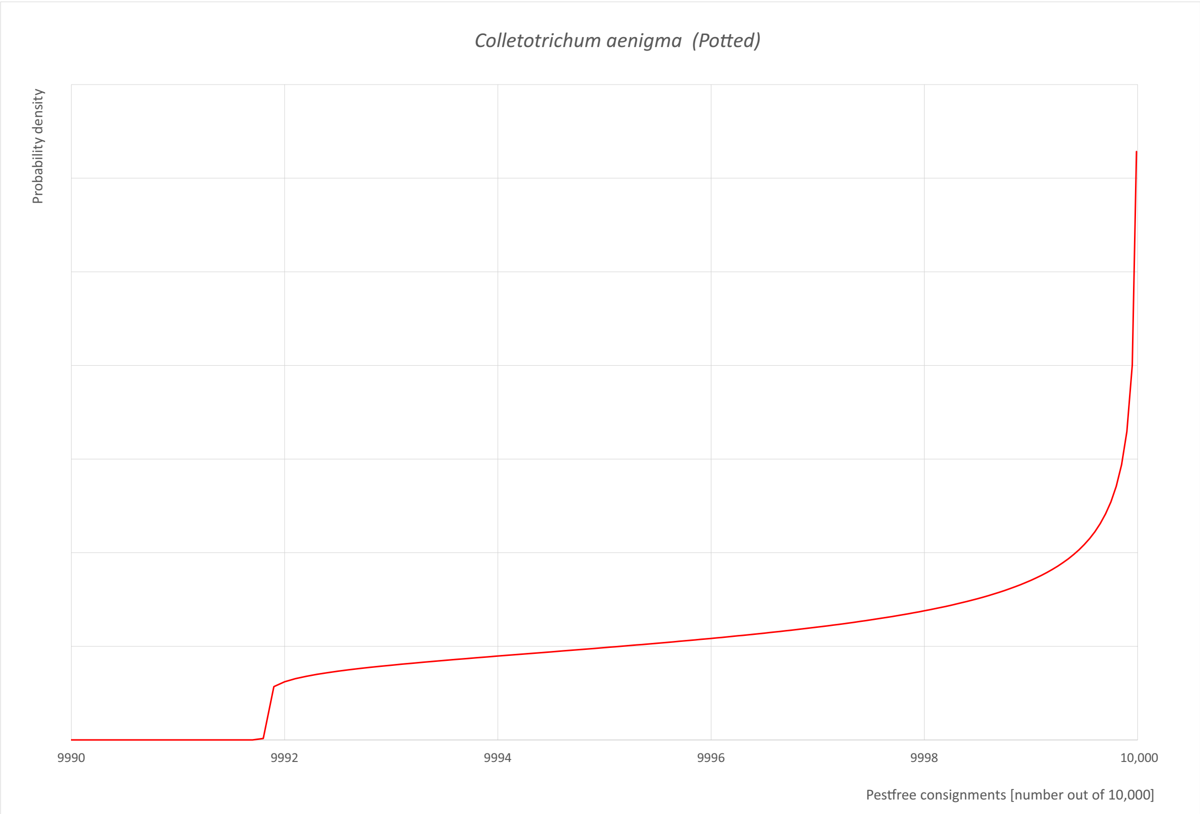
TABLE A.12 The uncertainty distribution of plants free of *Colletotrichum aenigma* per 10,000 plants calculated by Table A.11.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9995					9996		9998		9999					10,000
EKE results	9995.0	9995.1	9995.2	9995.5	9995.8	9996.2	9996.7	9997.5	9998.3	9998.7	9999.2	9999.5	9999.7	9999.87	9999.95

Note: The EKE results are the fitted values.

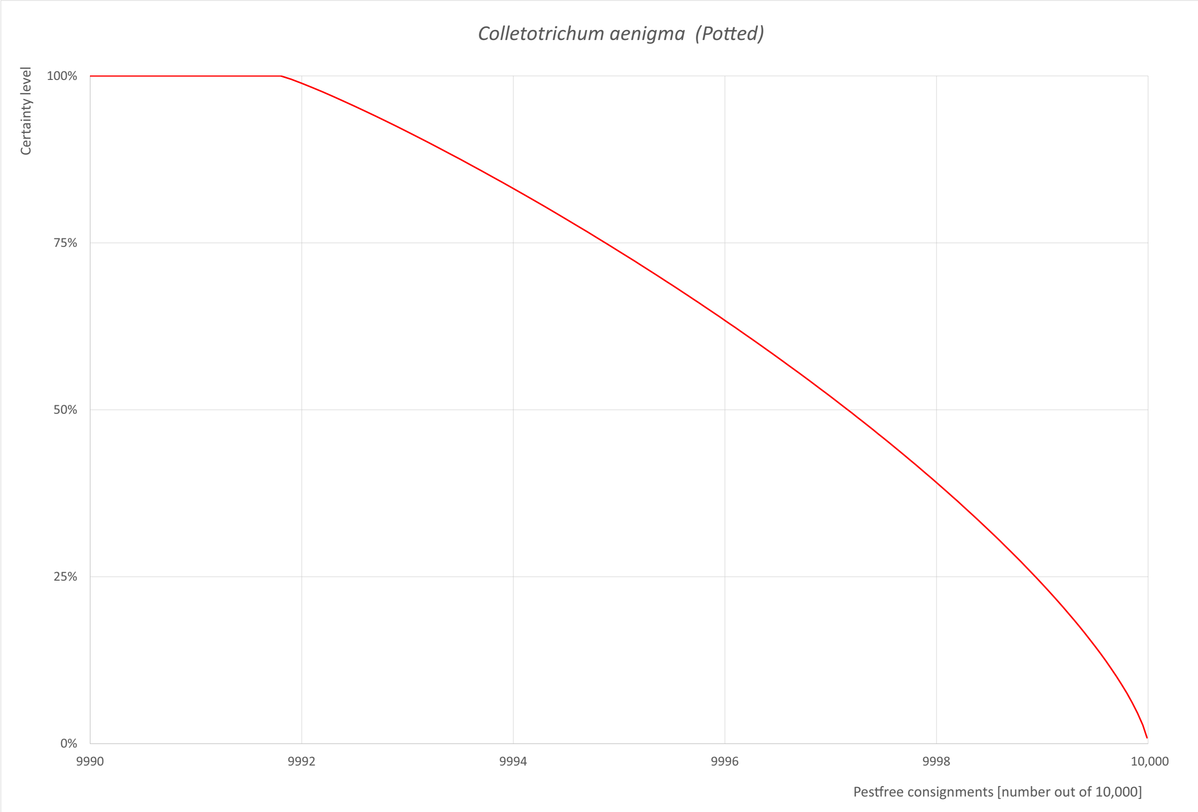


(A)



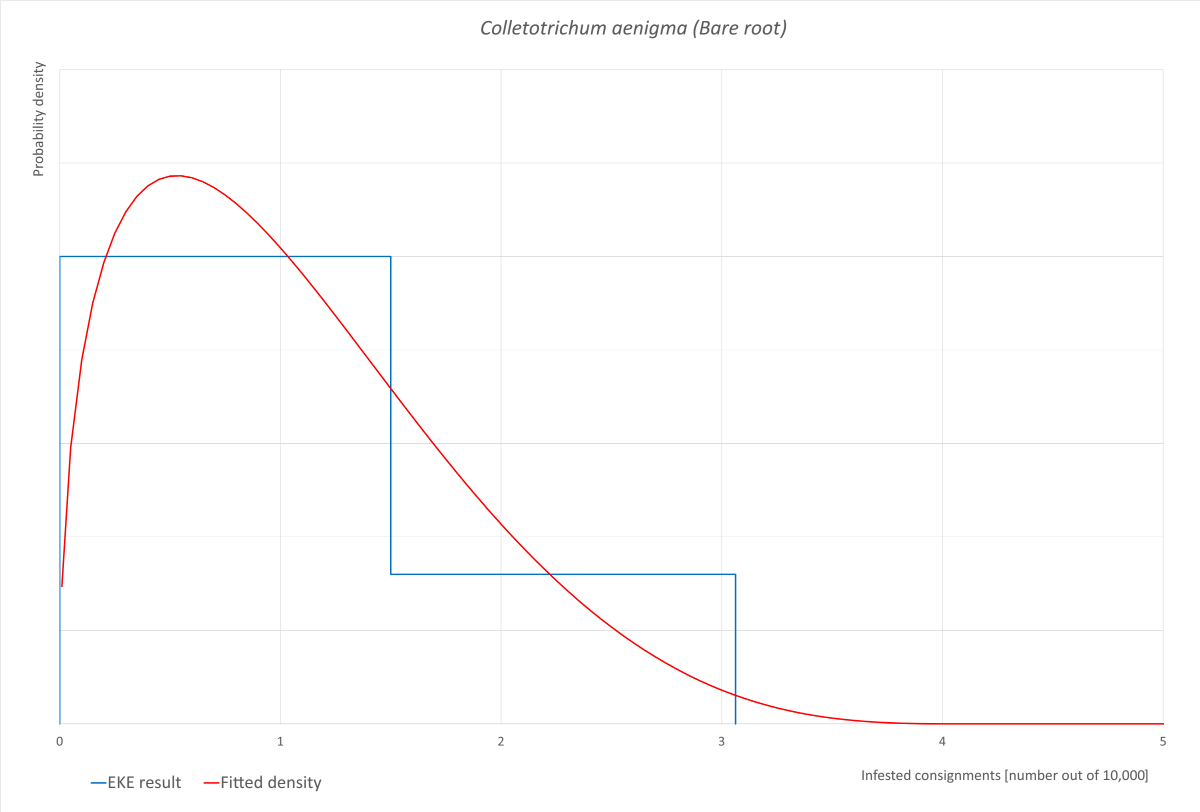
(B)

FIGURE A.4 (Continued)

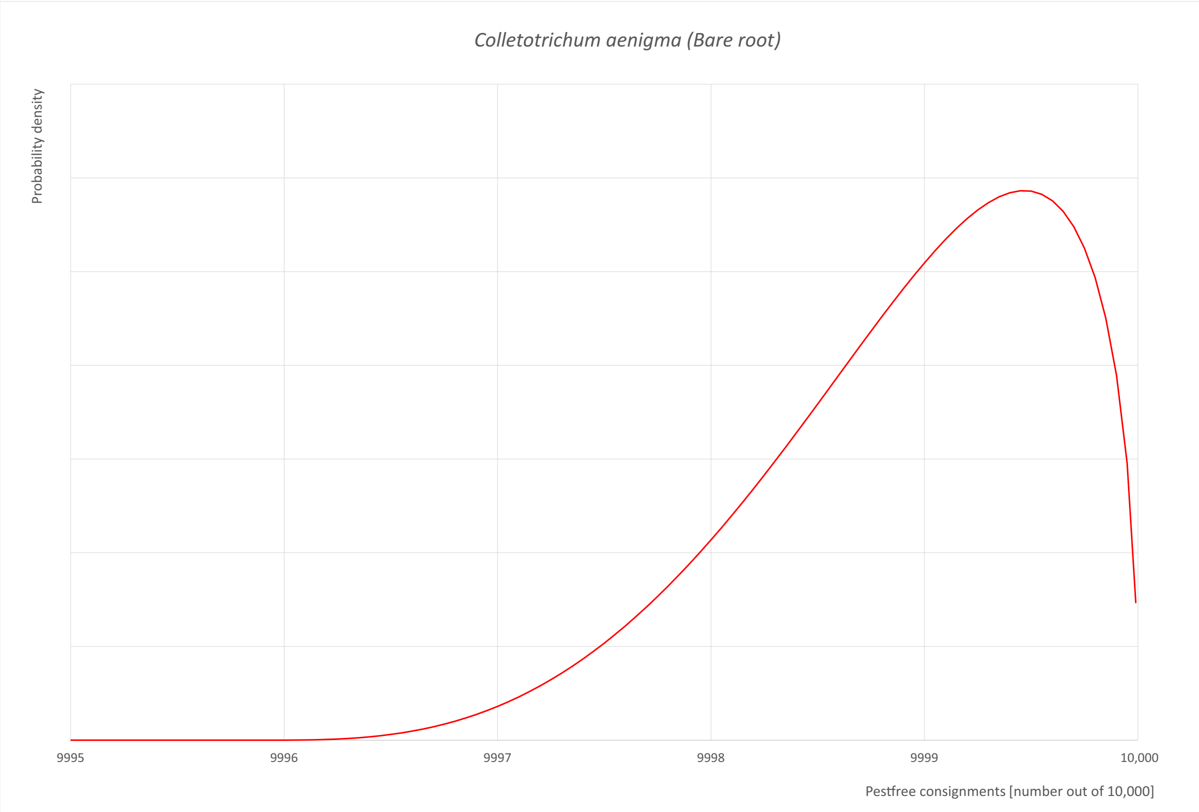


(C)

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

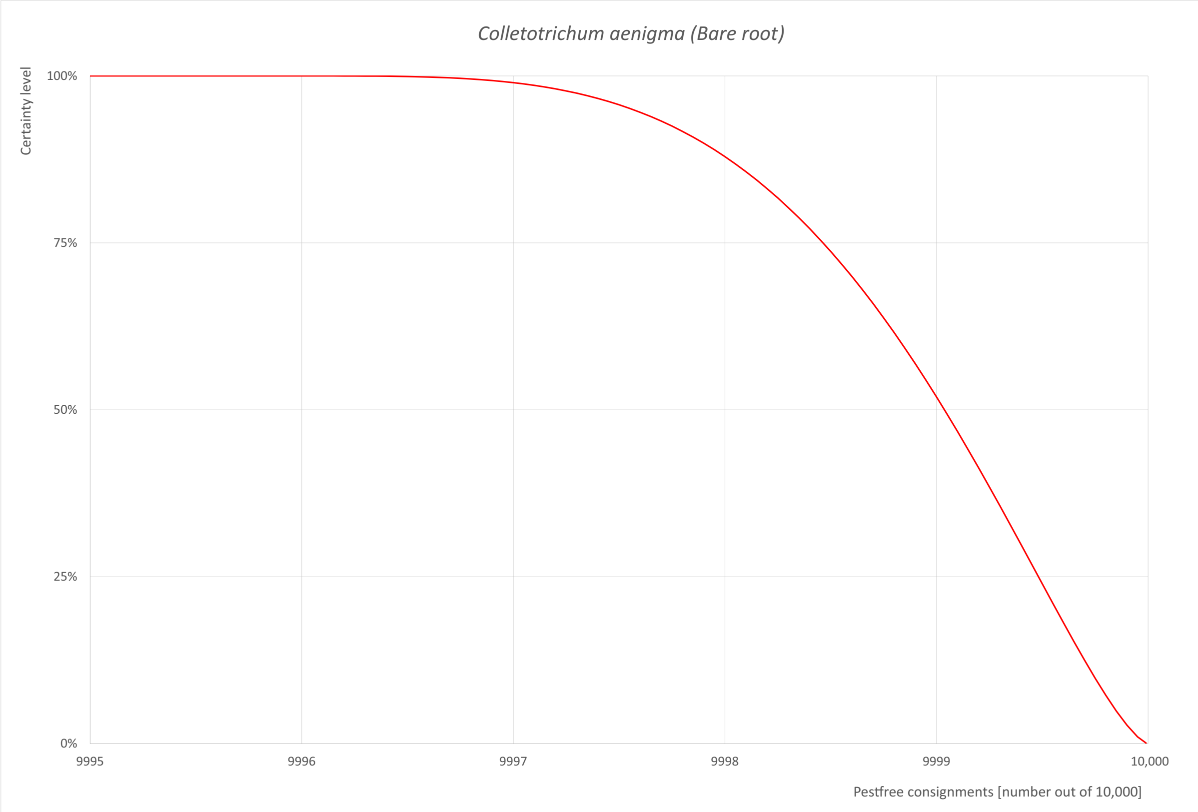


(A)



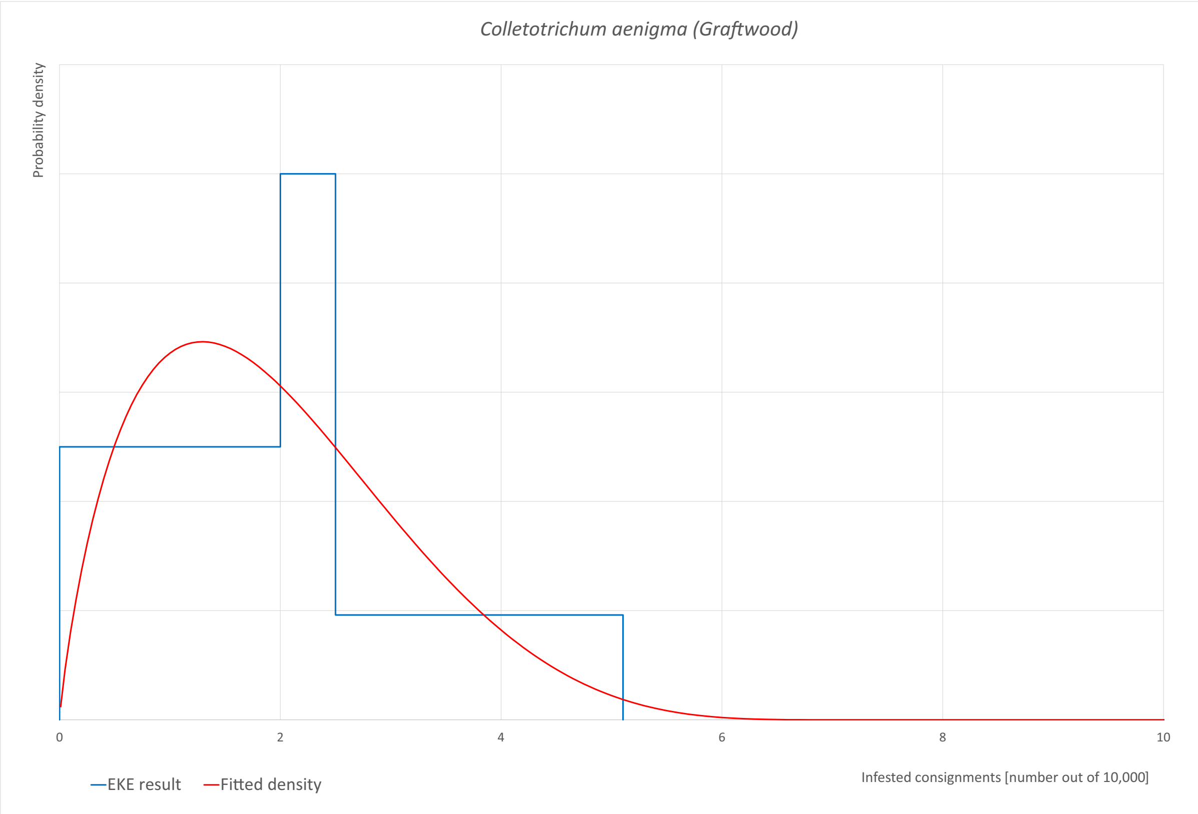
(B)

FIGURE A.5 (Continued)

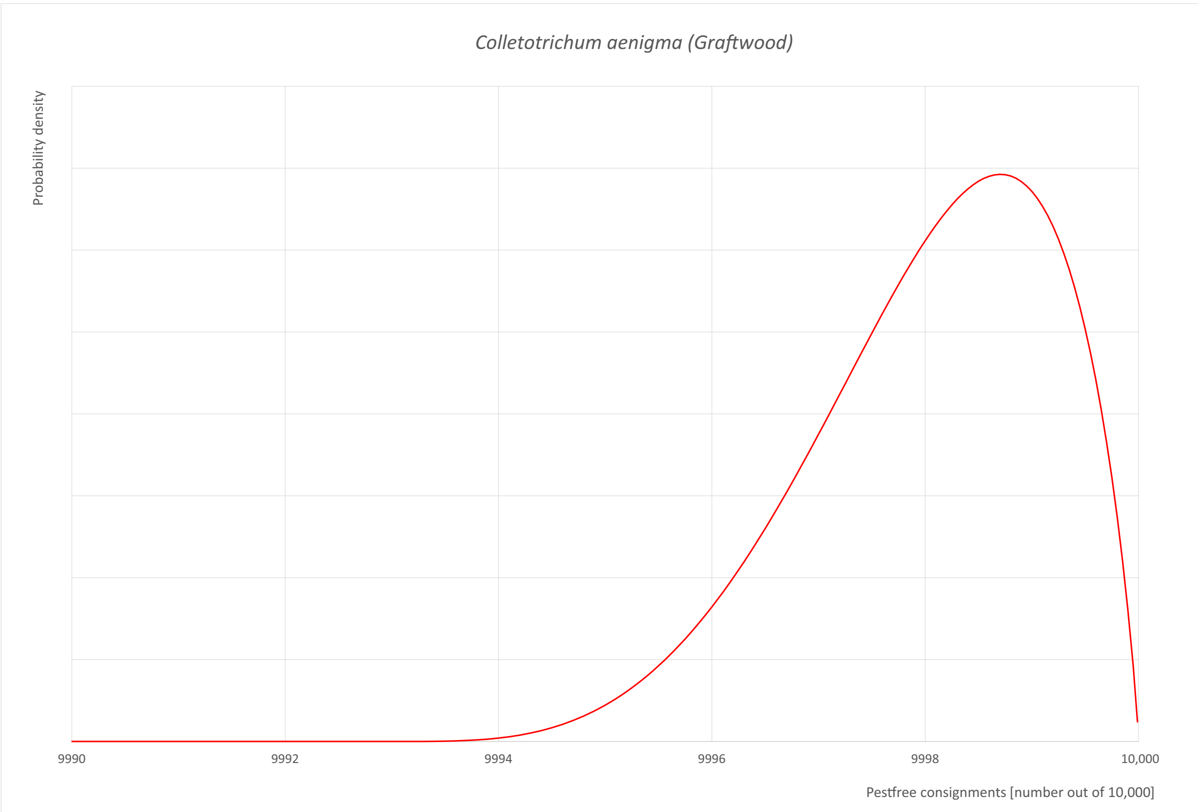


(C)

FIGURE A.5 (A) Elicited uncertainty of pest infestation per 10,000 single or bundles of bare root 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 bundles per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 bundles.

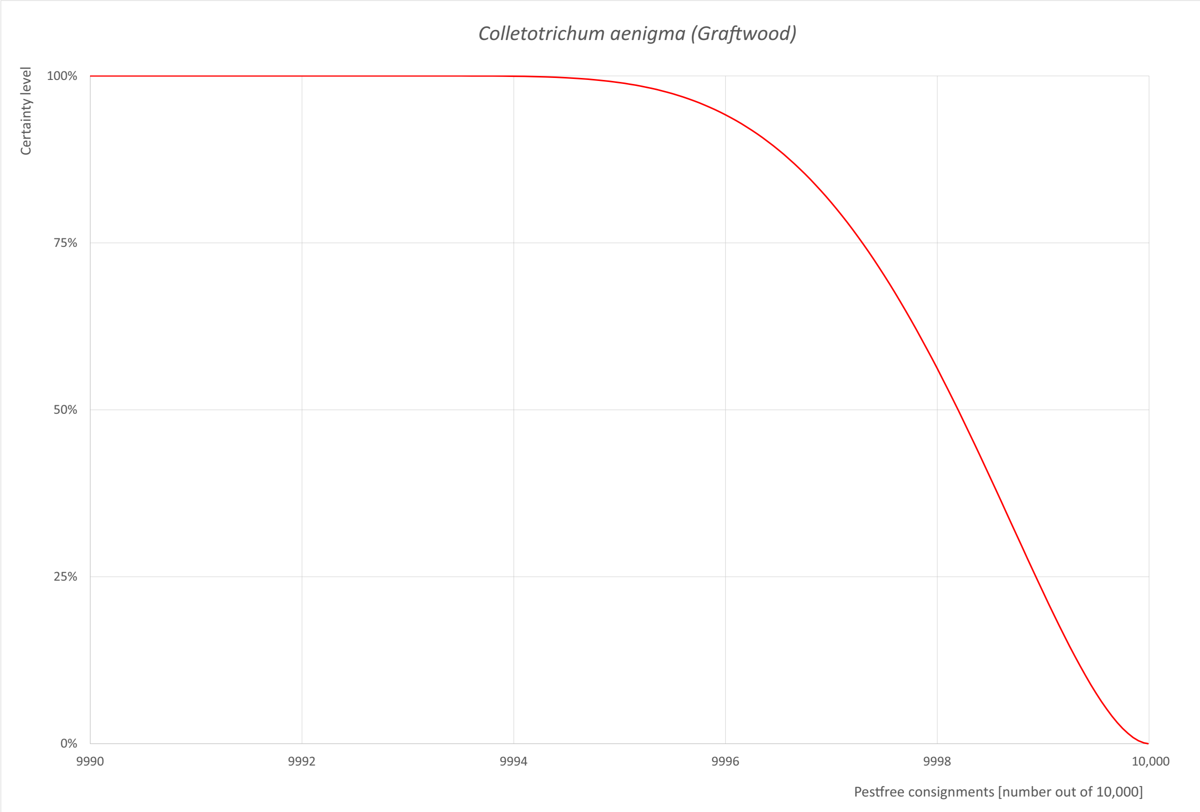


(A)



(B)

FIGURE A.6 (Continued)



(C)

FIGURE A.6 (A) Elicited uncertainty of pest infestation per 10,000 bundles of graftwood/budwood or cell- grown 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 bundles per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 bundles.

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A.4 | *EULECANIUM EXCRESCENS*

A.4.1 | Organism information

Taxonomic information	Current valid scientific name: *Eulecanium excrescens* (Ferris) Synonyms: *Lecanium excrescens* Name used in the EU legislation: – Order: Hemiptera Family: Coccidae Common name: excrescent scale, wisteria scale Name used in the Dossier: *Eulecanium excrescens*	
Group	Insects	
EPPO code	–	
Regulated status	The pest is neither regulated in the EU nor listed by EPPO. *Eulecanium excrescens* is listed in the UK Plant Health Risk Register but archived in 2020 as considered to pose a low risk to the UK (DEFRA, online).	
Pest status in UK	*Eulecanium excrescens* is present in the UK as an introduced species with restricted distribution to the Greater London Area; outside this area, the pest has been reported only in a few localities of the neighbouring county of Hertfordshire (Salisbury et al., 2010). The scale has been found at numerous sites in London and is likely to have been present in the UK since at least 2000. *E. excrescens* may be more widespread in the PRA area than is currently known. The species is currently considered present in the UK.	
Pest status in the EU	*Eulecanium excrescens* is absent from the territory of the EU (García Morales et al., online).	
Host status on *Prunus spinosa*	*Prunus domestica* and *Prunus* spp. are reported as hosts of *E. excrescens* (Deng, 1985).	
PRA information	Pest Risk Assessments available: • UK Risk Register Details for *Eulecanium excrescens* (DEFRA, online); • CSL Pest Risk Analysis for *Eulecanium excrescens* (MacLeod and Matthews, 2005).	
Other relevant information for the assessment		
Biology	According to Malumphy (2005), *E. excrescens* has one generation/year; the nymphs overwinter and reach maturity in April. The adult females lay eggs in May; eggs hatch in May–June and crawlers settle on the leaves; in Autumn, before the leaves fall, they move from the leaves to the twigs to overwinter.	
Symptoms	**Main type of symptoms**	*Eulecanium excrescens* is a sap sucker able to damage host plants by removing large quantities of sap, so causing weakening, leaf loss and dieback; large amount of honeydew is also produced, reducing photosynthesis and disfiguring ornamental plants in parks and gardens (MacLeod and Matthews, 2005).
	Presence of asymptomatic plants	A grey powdery wax resembling a growth of mould usually covers the scale, although this may be lost as they mature. The immature nymphs are pale brown with rectangular whitish encrustations on their surface. Both adults and nymphs occur on the stems and branches of the host plants. A detailed description is given in Malumphy (2005) and references therein.
	Confusion with other pests	Low initial infestations may be overlooked. Although juveniles of *E. excrescens* can be confused with other scales, but globular, dark brown, mature adult females of *E. excrescens* can usually be distinguished from other Coccidae found in the UK by their large size, up to 13 mm long and 10 mm high.
Host plant range	*E. excrescens* is considered highly polyphagous and has been recorded on a wide range of deciduous orchard and ornamental trees e.g. *Malus* spp. (apple), *Prunus* spp. (peach/cherry) and *Pyrus* spp. (pear) (Essig, 1958; Gill, 1988; Kosztarab, 1996). To date in the UK, *E. excrescens* has not been found on fruit trees in gardens or commercial orchards but only on ornamentals in private gardens on *Wisteria* (Fabaceae), *Prunus* spp. and South African trumpet vine (*Podranea ricasoliana*: Bignoniaceae). However, due to its polyphagy, this scale could be economically important for apple (*Malus* spp.), almond (*Prunus dulcis* (Mill.)), apricot (*Prunus armeniaca* L.), cherry (*Prunus* spp.), elm (*Ulmus* spp.), peach (*Prunus persica* (L.)), pear (*Pyrus communis* L.), sycamore (*Acer pseudoplatanus* L.), walnut (*Juglans regia* L.) and *Wisteria* spp. (Essig, 1958; Gill, 1988).	

(Continued)

Reported evidence of impact	In China, this scale is regarded as a pest damaging fruit orchards (MacLeod and Matthews, 2005), i.e. *Malus* spp., *Prunus* spp. and *Pyrus* spp. (Deng, 1985). In the USA, *E. excrescens* is included in the list of pests harmful to hazelnut (*Corylus avellana*) production in Oregon (Murray and Jepson, 2018). In California it is rare and not regarded as a pest of economic importance (Gill, 1988). There are no data from other US states. However, through feeding, *E. excrescens* does remove large quantities of sap, weakening the plant causing some leaf loss and slow dieback. Large amounts of honeydew are produced and aesthetic damage to host plants may occur. Wisterias are very high value plants, often a main feature of gardens and buildings where they climb and cover south facing walls. Although detracting from the aesthetic appearance of the host, *E. excrescens* is unlikely to kill mature plants. Young, small plants would be more susceptible and could be killed. A parasitoid species has been detected attacking *E. excrescens* on one infested plant in London (Malumphy, 2005). Thus, natural enemies may be able to limit further damage.
Pathways and evidence that the commodity is a pathway	This scale could be transported on *Prunus* spp. plants as nymphs and adults because they feed on stems and branches (Salisbury et al., 2010).
Surveillance information	There is no dedicated surveillance for *E. excrescens* in UK.

A.4.2 | Possibility of pest presence in the nursery

A.4.2.1 | Possibility of entry from the surrounding environment

If present in the surroundings, the pest can enter the nursery (as the UK is producing these plants for planting outdoors). Indeed, although only reported on ornamental plants in private gardens in the Greater London Area and a few localities of the neighbouring county of Hertfordshire, *E. excrescens* may be more widespread than is currently known. The pest could enter the nursery either by passive dispersal (e.g. wind), especially crawlers, which can be easily uplifted by wind, by infested plant material by nursery workers and machinery. Given that the pest is very polyphagous it could be associated with several plant species in the nursery surroundings, since in the nursery hedges possible hosts of *E. excrescens* as *Prunus spinosa*, *P. laurocerasus* etc. are present.

<u>Uncertainties</u>

- No information on the presence of the pest on the host plants in the nursery surroundings is available.

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

A.4.2.2 | Possibility of entry with new plants/seeds

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 initial low populations, the species can be overlooked. Introduction of the pest with certified material is very unlikely.

<u>Uncertainties</u>

- Uncertain if certified material is carefully screened for this pest.
- Uncertain if the pest could enter with other incoming plants.

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

A.4.2.3 | Possibility of spread within the nursery

If the scale enters the nursery from the surroundings, it could spread within the nursery either by passive dispersal (e.g. wind), especially crawlers, that 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. During the production process, visual inspections are performed, with microscopic observations if needed. Chemical control is applied targeting other species but potentially effective towards *E. excrescens*. Pruning can also affect scale populations either directly by removal of infested branches and indirectly exposing the pest to biotic and abiotic control agents.

Uncertainties

- Uncertain if other host plants grown in the nurseries are inspected in terms of scale presence.

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

A.4.3 | Information from interceptions

There are no records of interceptions of *E. excrescens on Prunus* spp. plants for planting from the UK between 1998 and January 2025 (EUROPHYT and TRACES-NT, online).

A.4.4 | Evaluation of the risk mitigation measures

In the table below, all risk mitigation measures currently applied in the UK are listed and an indication of their effectiveness on *E. excrescens* is provided. The description of the risk mitigation measures currently applied in UK is provided in Table 5.

No.	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Certified material	Yes	Evaluation: Potential *E. excrescens* infestations could easily be detected, though low initial infestations might be overlooked. Uncertainties: – Though the plant material is regularly monitored for plant health issues by trained nursery staff, the details of the certification process are not given (e.g. number of plants, intensity of surveys and inspections, etc.). Specific figures on the intensity of survey (sampling effort) are not provided.
2	Phytosanitary certificates	Yes	Evaluation: The procedures applied could be effective in detecting *E. excrescens* infestations, though low initial infestations might be overlooked. Uncertainties: – Specific figures on the intensity of survey (sampling effort) are not provided.
3	Cleaning and disinfection of facilities, tools and machinery	No	
4	Rouging and pruning	Yes	Evaluation: Pruning can affect scale populations either directly by removal of infested branches and indirectly exposing the pest to biotic and abiotic control agents.
5	Pesticide application and biological control	Yes	Evaluation: Chemicals listed in the dossier (acetamiprid and deltamethrin) are not applied specifically targeting this pest, however they may be effective, though chemical applications can affect biological control agents. Uncertainties: – No details are given on the pesticide application schedule. – No details are provided on abundance and efficacy of the natural enemies.
6	Surveillance and monitoring	Yes	Evaluation: It can be effective. Uncertainties: Low initial infestations (crawlers) might be overlooked.
7	Sampling and laboratory testing	Yes	Evaluation: It can be effective and useful for specific identification. Uncertainties: – Low initial infestations might be overlooked.
8	Root washing	No	
9	Refrigeration and temperature control	No	–
10	Pre-consignment inspection	Yes	Evaluation: It can be effective. Uncertainties: – There is a lack of details on the frequency and intensity of these inspections at this stage. – Low initial infestations might be overlooked.

A.4.5 | Overall likelihood of pest freedom

A.4.5.1 | Reasoning for a scenario which would lead to a reasonably low number of infested consignments

- Registration and certification of propagation material ensure pest-free production.
- Most of nurseries are placed in areas where the pest is not present.
- *E. excrescens* has not been reported on *Prunus* spp. in the UK.
- No other host plants are present in the nurseries and in the surroundings.
- Visual inspections can easily detect pest presence at adult stage.

A.4.5.2 | Reasoning for a scenario which would lead to a reasonably high number of infested consignments

- Registration and certification of propagation material does not target this pest and therefore does not ensure pest freedom.
- The pest spread in the UK from its first record site.
- *Prunus* spp. is a host of *E. excrescens* and could be infested in the UK as well.
- Other host plants are present in the nurseries and in the surroundings.
- Visual inspections cannot easily detect pest presence at crawler stage.

A.4.5.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infested consignments (median)

- Uncertainty about pest pressure in the UK.
- Information on infestations on *Prunus* spp. plants in the UK is uncertain.
- Lack of reports of infestation within the *Prunus* spp. growing area in the UK.

A.4.5.4 | Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/interquartile range)

- Presence of the pest in the surrounding areas is unknown.

A.4.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Eulecanium excrescens*

The elicited and fitted values for *Eulecanium excrescens* agreed by the Panel are shown in Tables A.13–A.18 and in the Figures A.7–A.9.

TABLE A.13 Elicited and fitted values of the uncertainty distribution of pest infestation by *Eulecanium excrescens* per 10,000 potted plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					5		10		15					20
EKE	0.212	0.521	1.03	2.03	3.37	5.02	6.66	10.0	13.3	15.0	16.7	18.1	19.2	19.7	20.1

Note: The EKE results is the BetaGeneral (1.019, 1.0443, 0, 20.3) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested plants the pest freedom was calculated (i.e. = 10,000 – the number of infested plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.14.

TABLE A.14 The uncertainty distribution of plants free of *Eulecanium excrescens* per 10,000 potted plants calculated by Table A.13.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9980					9985		9990		9995					10,000
EKE results	9979.9	9980.3	9980.8	9981.9	9983.3	9985.0	9986.7	9990.0	9993.3	9995.0	9996.6	9998.0	9999.0	9999.5	9999.8

Note: The EKE results are the fitted values.

TABLE A.15 Elicited and fitted values of the uncertainty distribution of pest infestation by *Eulecanium excrescens* per 10,000 bare root plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					3		6		9					12
EKE	0.125	0.309	0.613	1.21	2.02	3.01	4.00	5.99	8.00	9.00	10.0	10.9	11.5	11.8	12.0

Note: The EKE results is the BetaGeneral (0.91894, 1.0407, 0, 10.15) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested bundles of bare root plants the pest freedom was calculated (i.e. = 10,000 – the number of infested bundles per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.16.

TABLE A.16 The uncertainty distribution of bundles free of *Eulecanium excrescens* per 10,000 bare root plants calculated by Table A.15.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9988					9991		9994		9997					10,000
EKE results	9988.0	9988.2	9988.5	9989.1	9990.0	9991.0	9992.0	9994.0	9996.0	9997.0	9998.0	9998.8	9999.4	9999.7	9999.9

Note: The EKE results are the fitted values.

TABLE A.17 Elicited and fitted values of the uncertainty distribution of pest infestation by *Eulecanium excrescens* per 10,000 graftwood plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0.0					1.5		3.0		5.0					8.0
EKE	0.0639	0.154	0.301	0.590	0.98	1.47	1.97	3.05	4.27	4.96	5.74	6.49	7.18	7.64	8.01

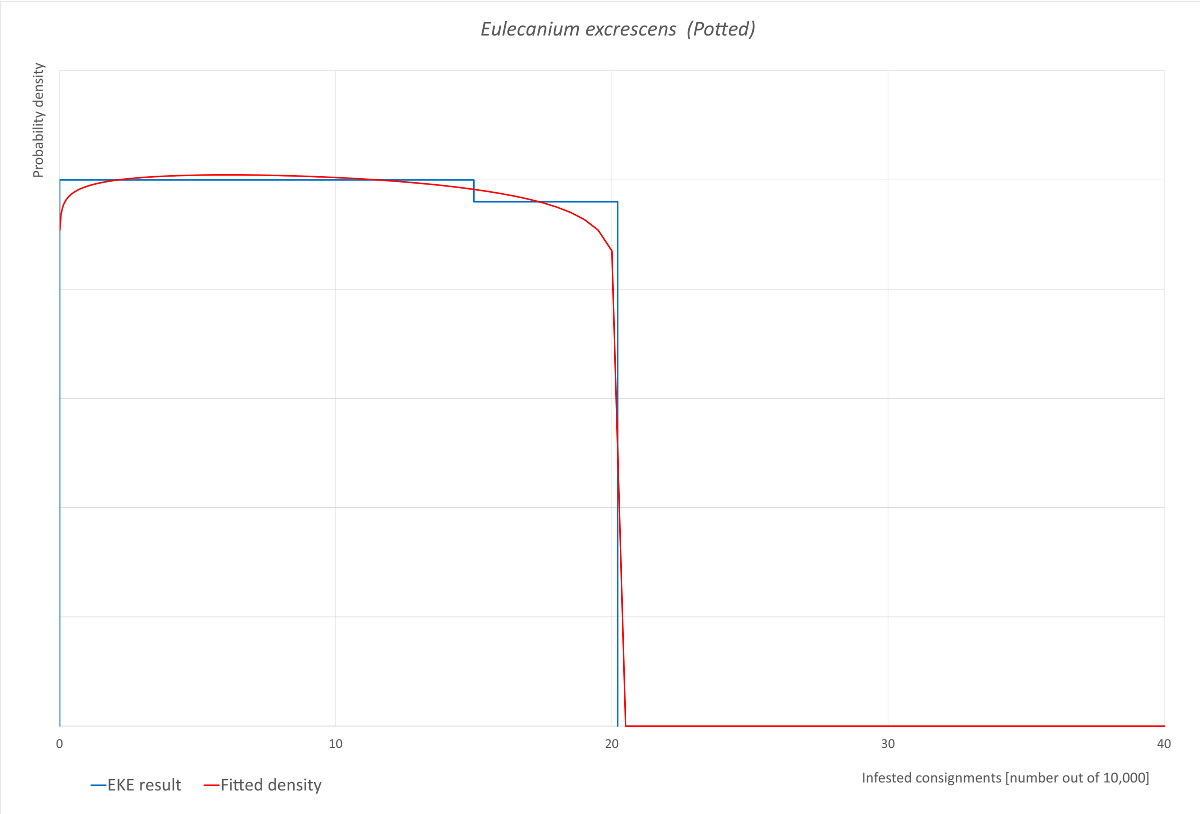
Note: The EKE results is the BetaGeneral (0.91894, 1.0407, 0, 10.15) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested bundles of bare root plants the pest freedom was calculated (i.e. = 10,000 – the number of infested bundles per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.18.

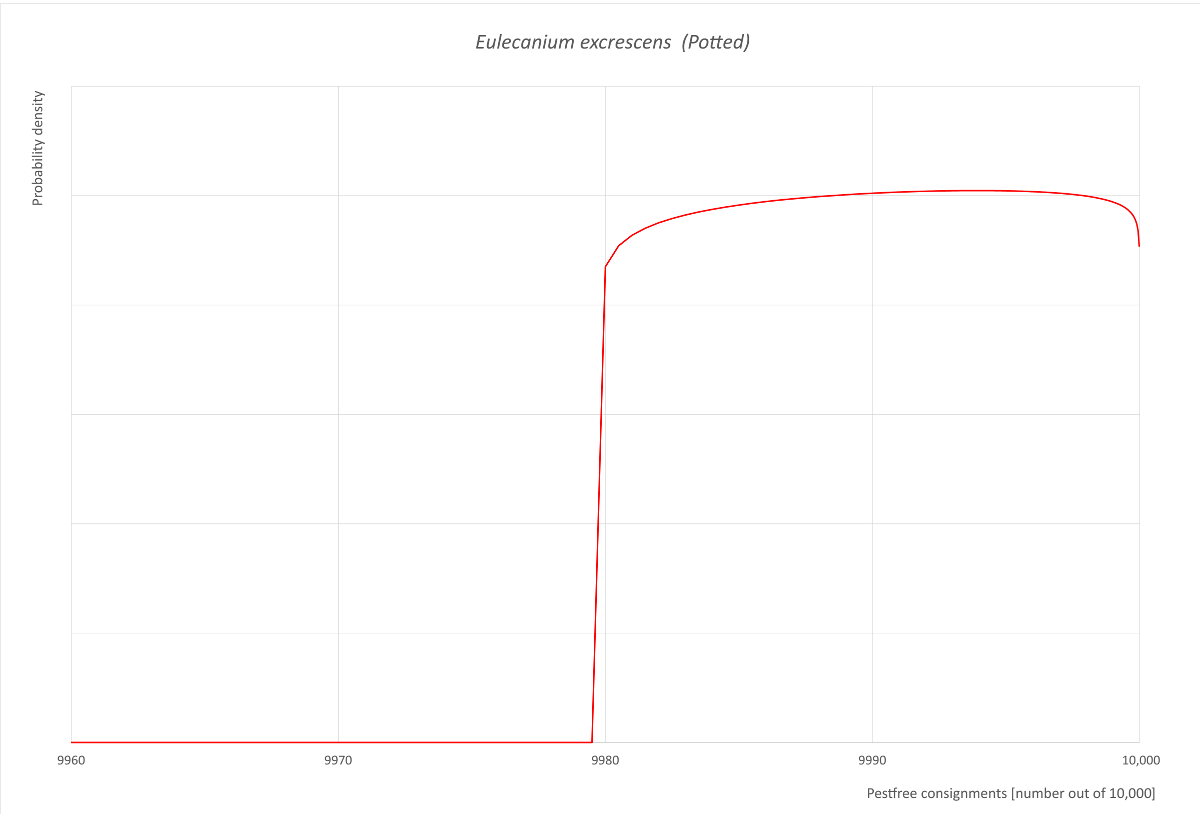
TABLE A.18 The uncertainty distribution of bundles free of *Eulecanium excrescens* per 10,000 graftwood plants calculated by Table A.17.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9992					9995		9997		9999					10,000
EKE results	9992.0	9992.4	9992.8	9993.5	9994.3	9995.0	9995.7	9996.9	9998.0	9998.5	9999.0	9999.4	9999.7	9999.8	9999.9

Note: The EKE results are the fitted values.

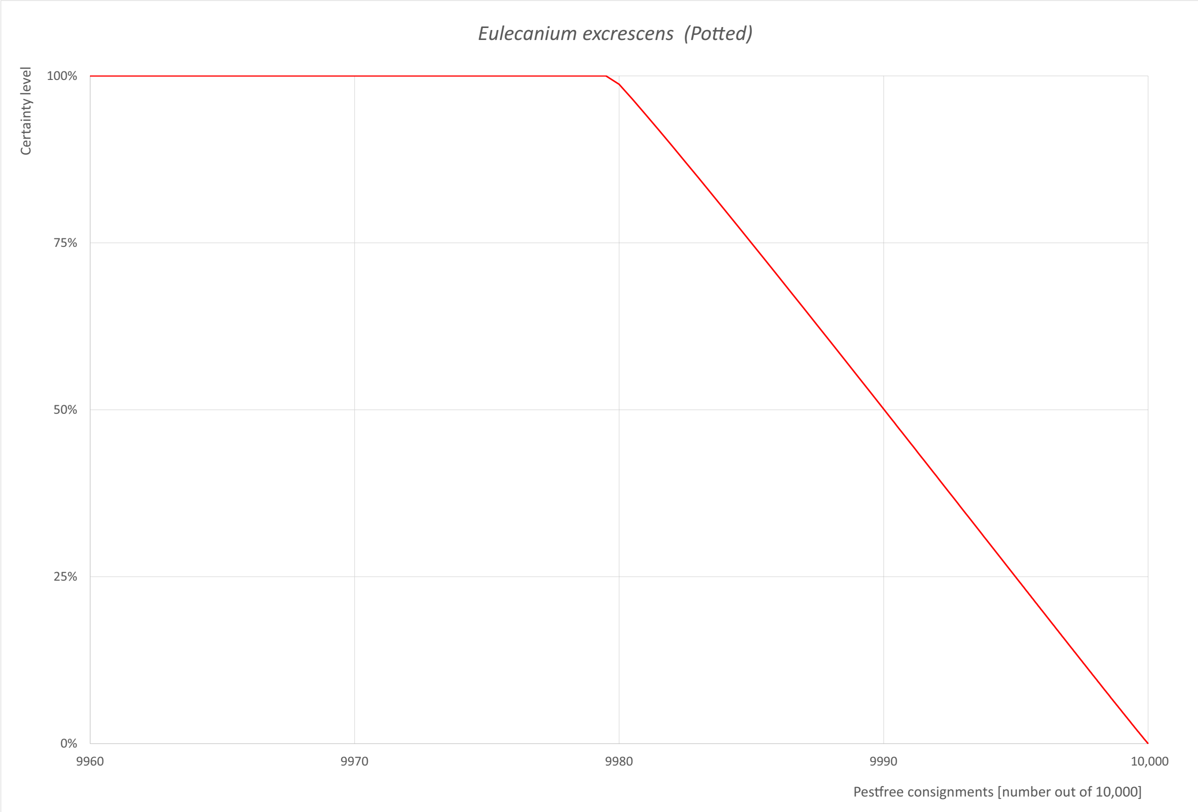


(A)



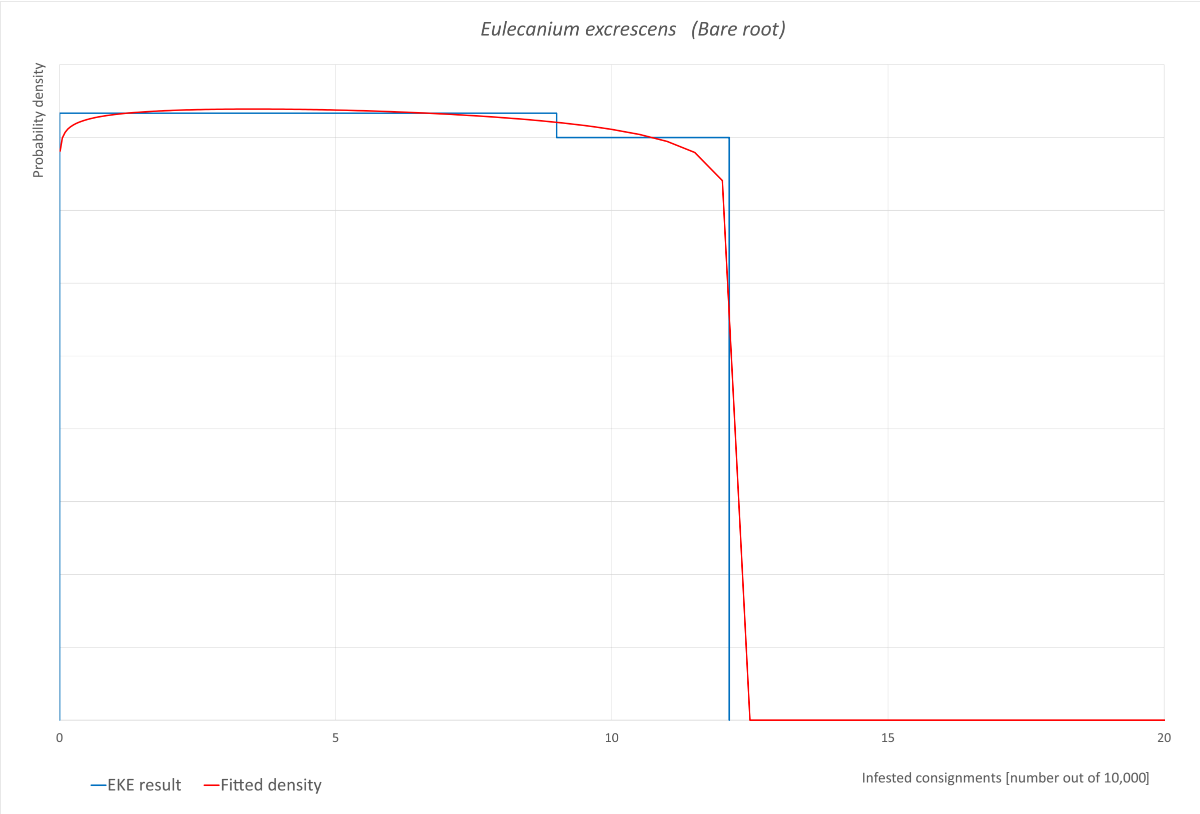
(B)

FIGURE A.7 (Continued)

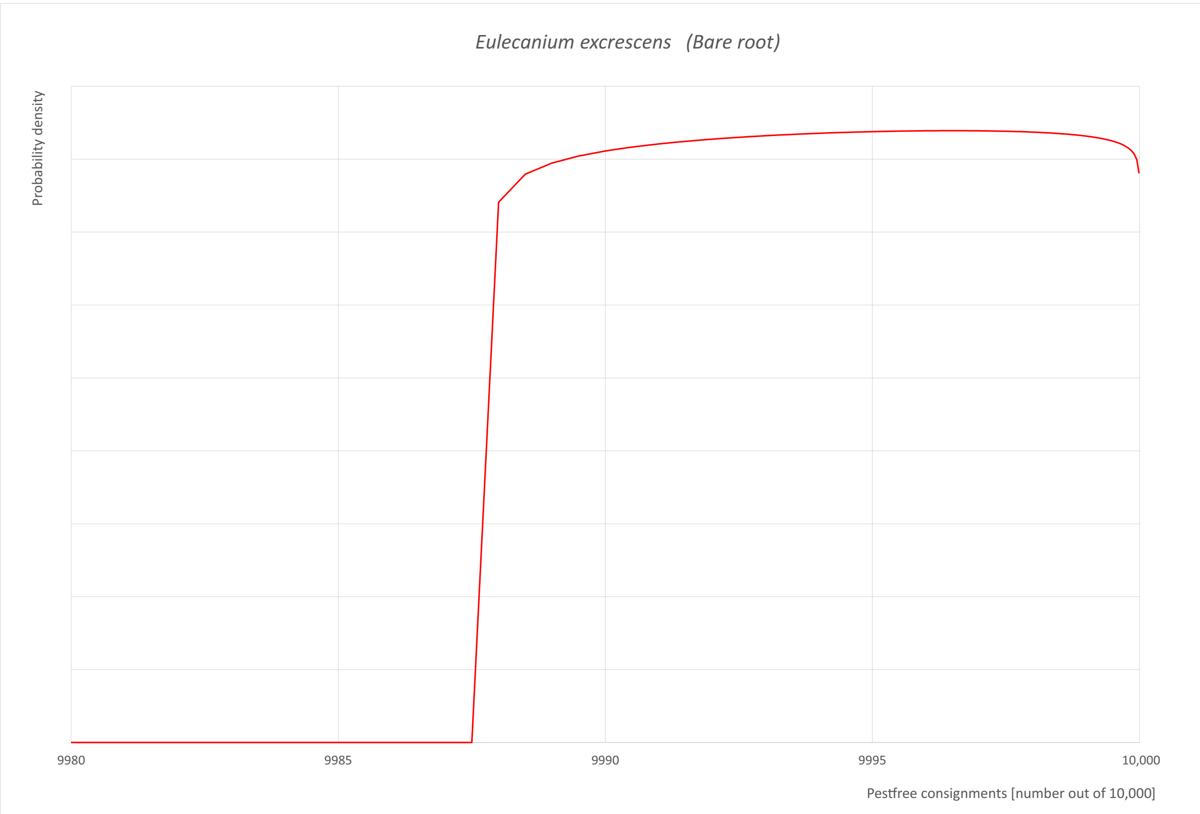


(C)

FIGURE A.7 (A) Elicited uncertainty of pest infestation per 10,000 potted or bare root plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 plants.

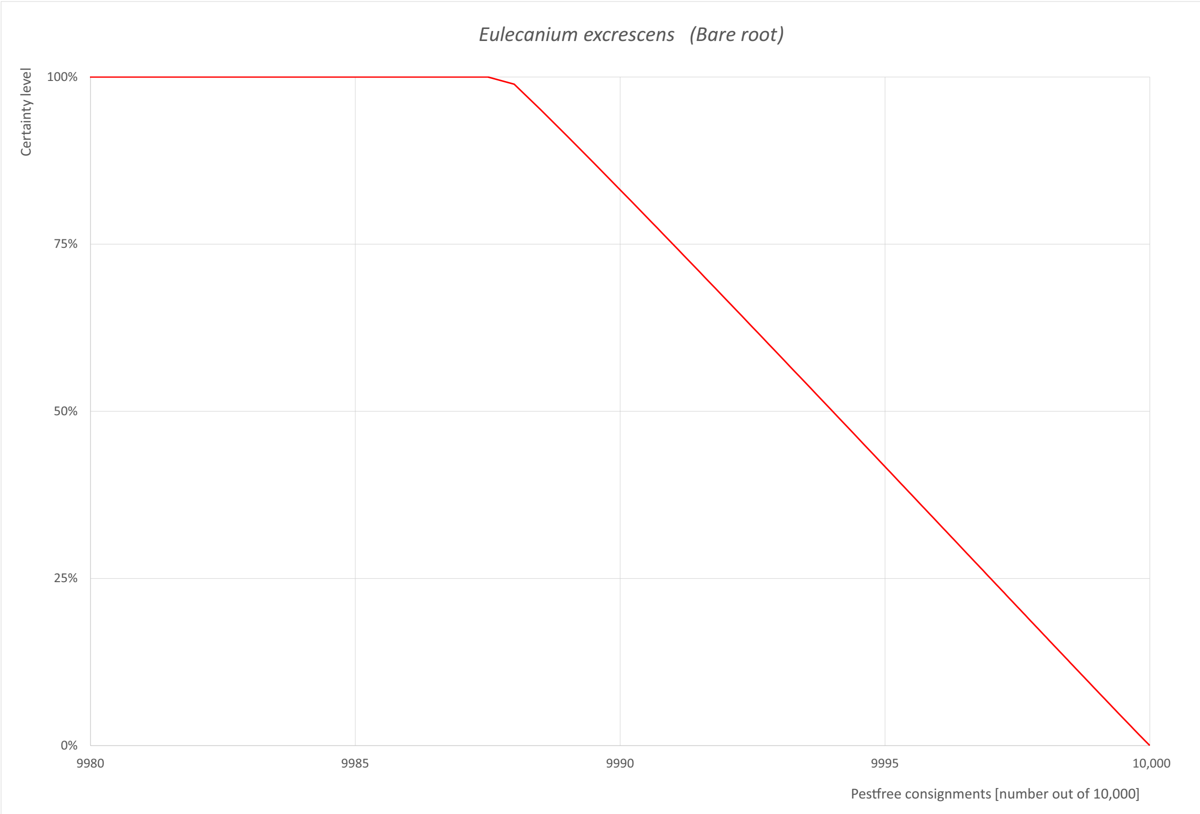


(A)



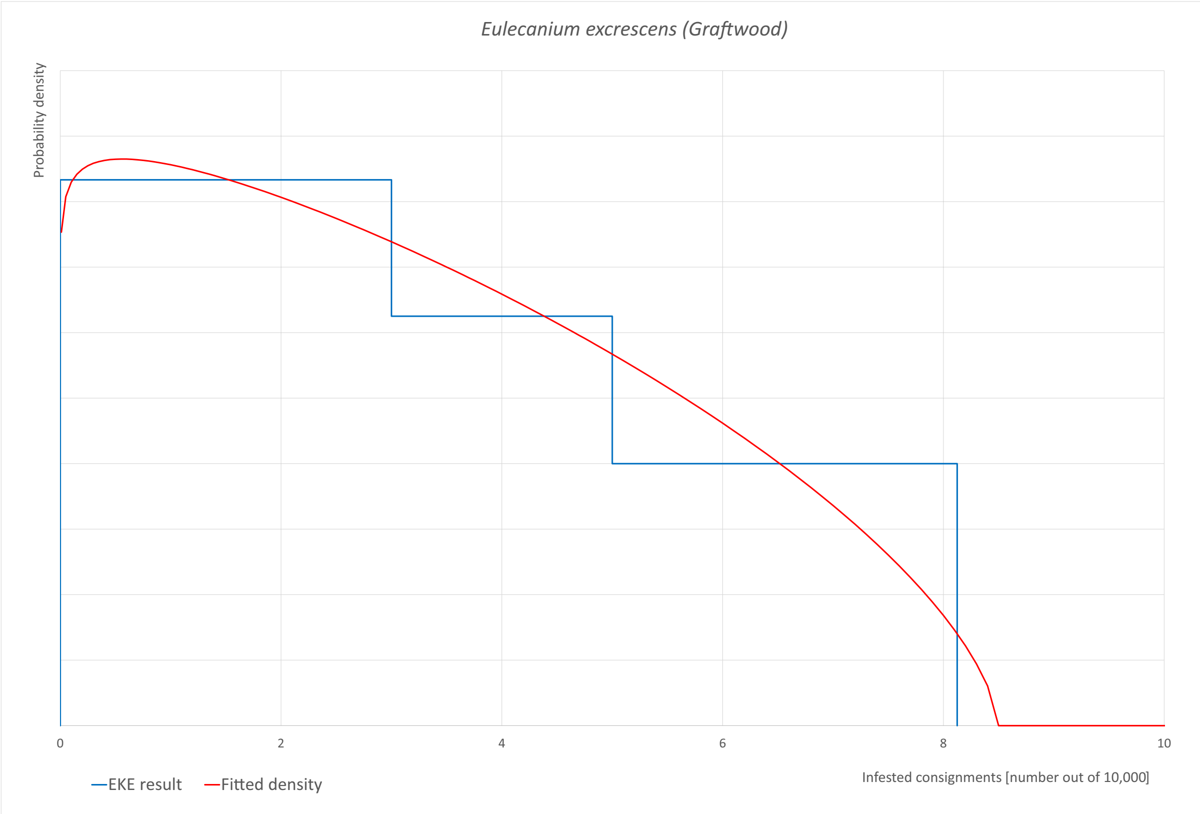
(B)

FIGURE A.8 (Continued)

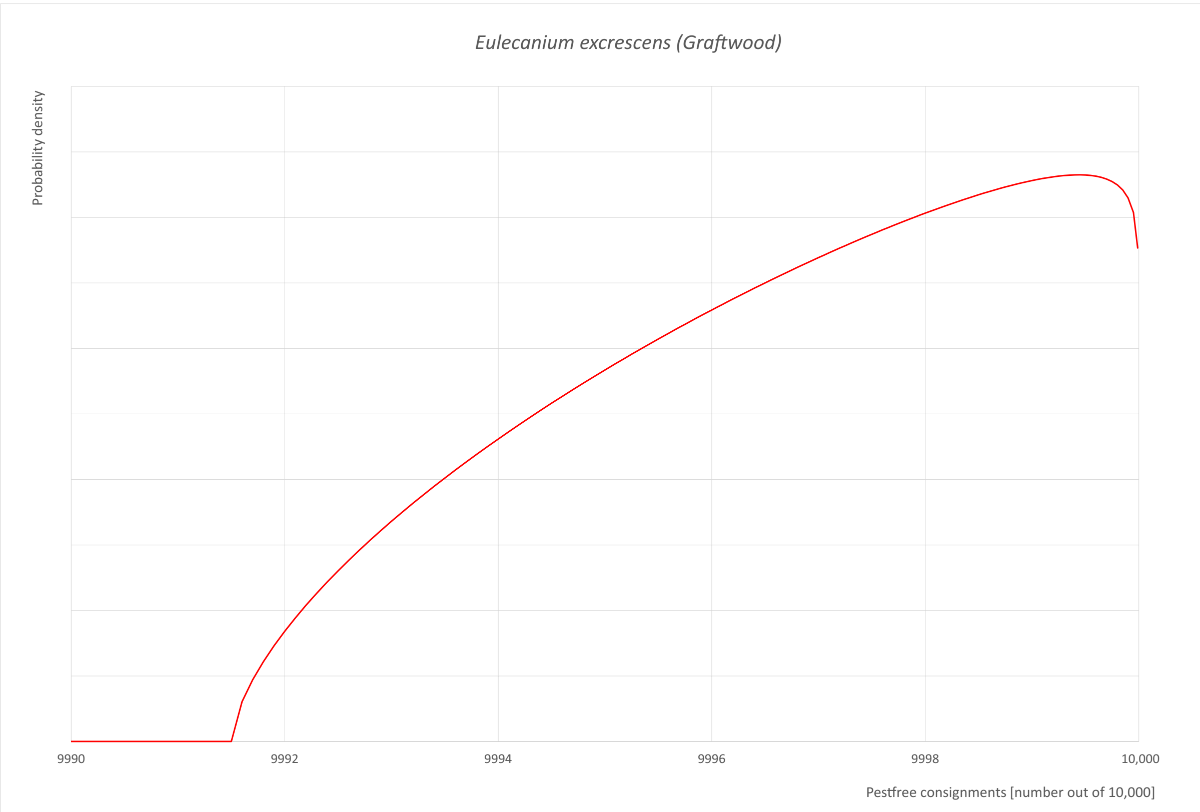


(C)

FIGURE A.8 (A) Elicited uncertainty of pest infestation per 10,000 potted or bare root plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 plants.

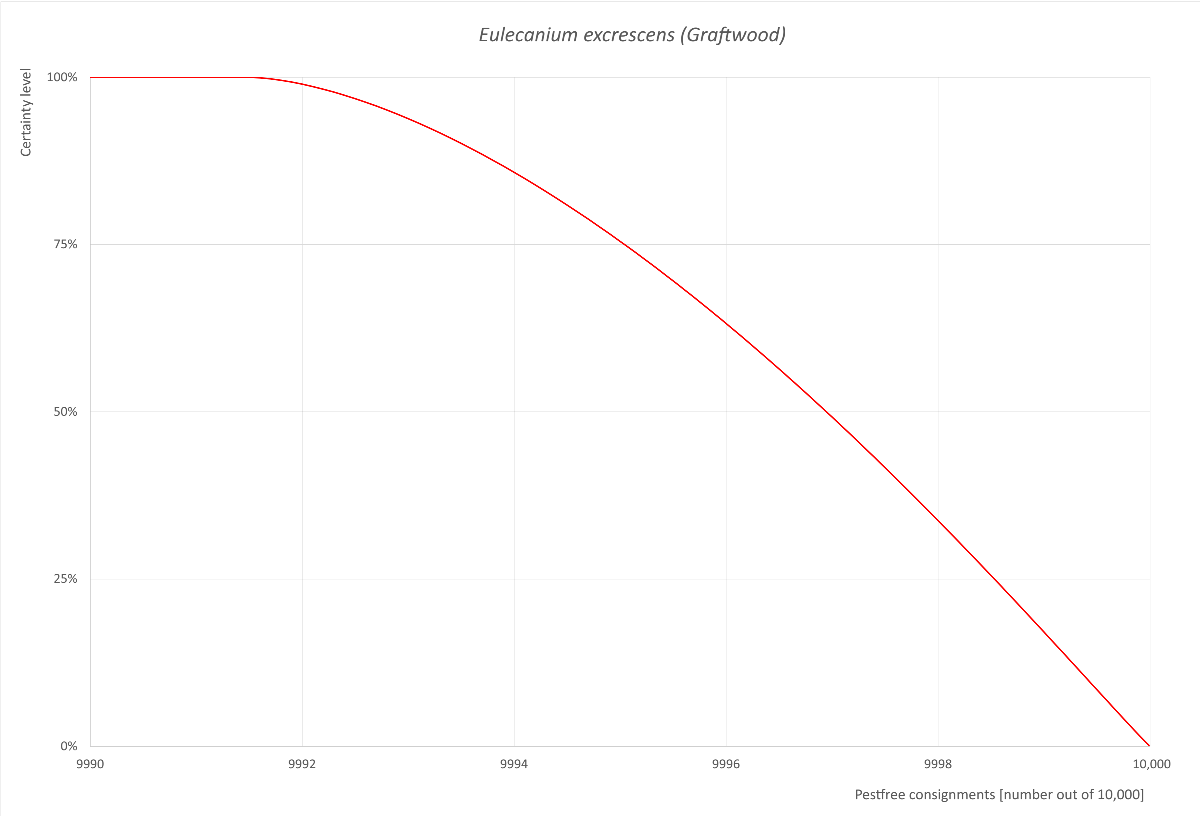


(A)



(B)

FIGURE A.9 (Continued)



(C)

FIGURE A.9 (A) Elicited uncertainty of pest infestation per 10,000 bundles of graftwood/budwood or cell-grown 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 bundles per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 bundles.

A.4.6 | References List

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A.5 | *ERWINIA AMYLOVORA*

A.5.1 | Organism information

Taxonomic information	Current valid scientific name: *Erwinia amylovora* (Burrill 1882) Synonyms: *Bacillus amylovorus* (Burrill) Trevisan, 1889, Bacterium amylovorum Chester, 1901, *Erwinia amylovora* f.sp. rubi Starr et al., 1951, *Micrococcus amylovorus* Burrill, 1882 Name used in the EU legislation: *Erwinia amylovora* Order: Enterobacterales Family: Erwiniaceae Common name of the disease: fireblight Name used in the Dossier: *Erwinia amylovora*

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Group	Bacteria	
EPPO code	ERWIAM	
Regulated status	**EU status:** The pest is listed in Annex III (Protected Zone Quarantine Pest - PZQP), Annex IV (Regulated Non-Quarantine pests – RNQP of Regulation (EU) 2019/2072, Annex V and Annex X as *Erwinia amylovora*. **Non-EU:** A1 list: Argentina (2019), Azerbaijan (2007), Bahrain (2003), Brazil (2018), Chile (2019), China (1993), East Africa (2001), Georgia (2018), Moldova (2006), Paraguay (1992), Southern Africa (2001), Uruguay (1992), Uzbekistan (2008). A2 list: Jordan (2013), Kazakhstan (2017), Russia (2014), Turkey (2016), Ukraine (2010). Quarantine pest: Belarus (1994), Moldova (2017), Morocco (2018), Norway (2012), Tunisia (2012) (EPPO).	
Pest status in the United Kingdom	*Erwinia amylovora* is present and widespread in the United Kingdom (Dossier).	
Pest status in the EU	Present, widespread: Bulgaria, Cyprus, Greece, Netherlands, Romania. Present, restricted distribution: Austria, Belgium, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, Luxembourg, Norway, Poland, Portugal, Slovenia, Spain, Sweden. Present, few occurrences: Ireland, Italy (Sicily), Lithuania, Slovakia (CABI, EPPO).	
Host status on Prunus spp.	*Prunus armeniaca, P. cerasifera, P. domestica* and *P. salicina* are reported as host plants for the *E. amylovora* in the EPPO Global Database (EPPO, online) and CABI Crop Protection Compendium (CABI CPC, online).	
PRA information	EFSA Scientific Opinion on pest categorisation of *E. amylovora* (EFSA PLH Panel, 2014).	
Other relevant information for the assessment		
Biology	The first infections occur in spring, from the inoculum from the previous year from the same orchard or surrounding areas. Bacterial cells may overwinter in buds or cankers, which then become a source of inoculum *Erwinia amylovora* enters its host plants through natural openings such as nectaries or stomata, and, after multiplication in these organs, bacteria can invade peduncles, shoots, leaves and immature fruits. The most susceptible stages of the host plant are the flowering and active vegetative growth periods. Secondary flowers that may be produced in late spring or summer are more prone to infections than the flowers produced during the main bloom, because warm temperatures favour pathogen multiplication. The optimal environmental conditions for the pest infection are temperatures from 18 to 29°C, high relative humidity (90%–95%) and wet plant surfaces, e.g. following rain. During the bloom period, temperatures as low as 12°C, are also favourable for infection (Bonn, 1978; van der Zwet and Beer, 1995; van der Zwet et al., 2012c).	
Symptoms	**Main type of symptoms**	The basic symptom of fire blight is the necrosis or death of tissues. An important symptom is droplets of ooze on infected tissues (CABI CPC, online). Flowers (the most susceptible organ to *E. amylovora*) • Water-soaked, darker green. • Spurs start collapsing and turning brown to black (within 5–30 days) (EFSA PLH Panel, 2014). Shoots • Turn brown to black from the tip, 'shepherd-crook' shape. Leaves & Fruits • Discoloration and consequently collapse. • Necrotic areas and wilting. • Exudation of milky, sticky liquid or ooze containing bacteria (during wet, humid weather). • Mummification (on fruits). Twigs, larger branches, trunk • Darker colour than usual. • Inner tissues water-soaked, in some cases with reddish streaks and later tissues turn dark brown to black. • Canker (usually appear in summer or autumn). Trees with rootstock • Liquid bleeding from the crown or below the graft union. • Yellow to red foliage, a month before normal autumn coloration. Dieback after the 1st year of infection (CABI CPC, online)
	Presence of asymptomatic plants	*Erwinia amylovora* can be present in asymptomatic plants and its detection may be difficult due to low bacterial cell numbers.
	Confusion with other pathogens/pests	Symptoms of fire blight can be confused with: *Pseudomonas syringae pv. syringae* (bacteria) causing blister spot of apple, *E. pyrifoliae*, *E. piriflorinigrans*, *E. uzenensis, Nectria cinnabarina* (fungi) causing Nectria twig blight, *Nectria galligena* (fungus) causing European canker, *Phomopsis tanakae* (fungus) causing European pear dieback, *Phomopsis mali* or *Sphaeropsis malorum* (fungi) causing fungal cankers, *Polycaon confertus*, twig borer beetle, *Jasnus compresus* and *Zeuzera pyrina* (insects) (EFSA PLH Panel, 2014; Kim et al., 1999; López et al., 2011; Matsuura et al., 2012; Roberts et al, 2008).

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Host plant range	*Erwinia amylovora* occurs in members of the Rosaceae family (CABI CPC, online). According to the list published in the CABI website, main hosts are: *Cotoneaster, Crataegus* (hawthorns), *Cydonia oblonga* (quince), *Eriobotrya, Eriobotrya japonica* (loquat), *Malus* (ornamental species apple), *Malus domestica* (apple), *Prunus salicina* (Japanese plum), *Pyracantha* (Firethorn), *Pyrus* (pears), *Pyrus communis* (European pear). Other hosts are: *Amelanchier* (serviceberries), *Amelanchier alnifolia* (saskatoon serviceberry), *Amelanchier canadensis* (thicket serviceberry), *Cotoneaster horizontalis* (wall-spray), *Chaenomeles sinensis*, *Fragaria* (strawberry), *Malus floribunda*, *Mespilus* (medlar), *Photinia davidiana* (chinese stranvaesia), *Prunus armeniaca* (apricot), *Prunus cerasifera* (myrobalan plum), *Prunus domestica* (plum), *Pseudocydonia sinensis* (Chinese quince), *Pyracantha coccinea* (scarlet firethorn), *Pyrus amygdaliformis, Pyrus communis var. pyraster* (poirier sauvage), *Pyrus pyrifolia* (Oriental pear tree), *Rosa canina* (Dog rose), *Rosa rugosa* (rugosa rose), *Rubus* (blackberry, raspberry), *Rubus fruticosus* (blackberry), *Sorbus* (rowan), *Spiraea prunifolia*.
Evidence that the commodity can be a pathway	'Propagating plant material is the main source of introduction of fire blight in pathogen-free areas. Plants for planting, especially grafted rootstocks, might be latently infected by the pathogen and are the most important pathway for its introduction and spread, since they may harbour the pathogen both endophytically and in buds' (EFSA PLH Panel, 2014).
Surveillance information	*Erwinia amylovora* is present and widespread in the United Kingdom (Dossier). The UK carries out surveys for Regulated Quarantine pests. This also includes the *E. amylovora*.

A.5.2 | Possibility of pest presence in the nursery

A.5.2.1 | Possibility of entry from the surrounding environment

Crataegus spp. (hawthorn) is one of the main hosts for *E. amylova* and is present in hedges around the nurseries.

Natural spread is very likely through wind, water, rain, insects (especially pollinating insects), birds, aerosols and aerial strands (Keil et al., 1972). Infection takes place through flowers and later in the season, through small wounds (by winds, hail, insects) in young leaves and at the tips of growing shoots (CABI CPC, Online). *Erwinia amylovora* also can survive on other healthy plant surfaces, such as leaves and branches, for limited periods (weeks), but colony establishment and epiphytic growth on these surfaces do not occur. Cells of *E. amylovora* excrete large amounts of an extracellular polysaccharide (a major component of bacterial ooze), which creates a matrix that protects the pathogen on plant surfaces (Johnson, 2000). Once established, the transport of inoculum is possible through rain and wind. *E. amylovora* can survive for several weeks in pollen, nectar and honeybees (Choi et al. 2022).

Additionally, human factors pose a high risk in *E. amylovora* dispersion through machinery, equipment, pruning, spraying tools, shoes, clothes, transport means, etc. (VKM, 2007).

<u>Uncertainties</u>

- The degree of surveillance is unclear with respect to *E. amylovora*, since the buffer zone legislation does not specifically refer to *Prunus* spp.
- The presence of other host plants in private gardens located in the surroundings of the nurseries is unknown.
- Pest pressure in the surrounding areas is unknown.
- Latent infections may be present in the surrounding area.

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

A.5.2.2 | Possibility of entry with new plants/seeds

The United Kingdom has regulations in place for fruit plant propagating material that are in line with those of European Union, and this equivalence has been recognised in Commission Implementing Decision (EU) 2020/2219.

The main long-distance pathway is the import of infected/infested nursery stock and propagative material (Roberts et al., 2008) since the pathogen may be latent or can live as an epiphyte or an endophyte in buds and shoots (EFSA Scientific Opinion, 2014).

According to the Dossier, the commodities may be grown by grafting and budding from mother stock in the nursery. Original mother stock sourced in the UK would be certified with UK plant passports, and original mother stock from EU countries (mostly Netherlands) would be certified with phytosanitary certificates.

Seed is not considered to be a pathway for *E. amylovora*.

<u>Uncertainties</u>

- It is uncertain how the rootstocks are produced and if they are sourced from other companies.
- It is uncertain if the surveillance procedure can identify all plants that may be infested with the bacteria.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible, but highly unlikely, that the pathogen could enter the nursery with new plant material.

A.5.2.3 | Possibility of spread within the nursery

High level of soil moisture (by rain or irrigation), wind and air temperature between 18°C and 30°C can lead to rapid disease development (VKM, 2007). *Erwinia amylovora* can retain its pathogenic potential at temperatures ranging from 4°C (sometimes even lower) to 37°C (Santander et al., 2017). Movement of machineries/equipment and even pruning is a significant pathway (VKM, 2007).

Grafting could be a possible pathway since in propagation nurseries, cells of *E. amylovora* surviving on woody surfaces can initiate disease when scions and rootstocks are wounded during grafting. Bacteria can also reside as an endophyte within apparently healthy plant tissue, such as branches, limbs and budwood. Migration of the pathogen through xylem is one mechanism by which floral infections can lead to rootstock infections near the graft union (Johnson, 2000), though it is uncertain if this pathway exists for *Prunus* spp.

Moreover, dispersion is highly likely also through/via insects (especially pollinating), birds (CABI CPC, Online; Keil et al., 1972). Human factors pose a high risk in *E. amylovora* dispersion through machinery, equipment, pruning, spraying tools, shoes, clothes, etc. (VKM, 2007).

The irrigation is done on a need basis and could be overhead, sub irrigation or drip irrigation. Water used for irrigation can be drawn from several sources, the mains supply, bore holes or from rainwater collection/watercourses. Growers are required to assess water sources, irrigation and drainage systems used in the plant production for the potential to harbour and transmit plant pests. Water is routinely sampled and sent for analysis. No quarantine pests have been found.

<u>Uncertainties</u>

- Latent infections in plant material within nursery may spread to mother plants and production areas.
- Although the steps in production of the different plant material are explained in the dossier, the specific management of plants in the nursery is not detailed and therefore, there are uncertainties on to what extent common management practices could favour the spread of the disease.
- As we do not know population sizes of visiting flower herbivore and pollinating insects going from tree to tree in the nursery, there are uncertainties on likelihood of spread within the nursery.

Taking into consideration the above evidence and uncertainties, the Panel considers that the transfer of the pathogen within the nursery is possible. As explained above, *E. amylovora* can be spread by means of abiotic factors (water, wind) and also by insects (especially pollinators) and given the fact that the bacteria may be present in the nursery, spread of the bacteria can occur easily under favourable environmental conditions. The presence of insects or the use of machinery and tools can also spread the bacteria and therefore, there is a theoretical risk of spreading within the nursery that cannot be neglected.

A.5.3 | Information from interceptions

Considering imports of *Prunus* spp. plants from the UK to the EU, between 2009 and 2025 (until January), there are no records of interceptions of *E. amylovora* (EUROPHYT, TRACES, online).

A.5.4 | Evaluation of the risk reduction options

In the table below, all the RROs currently applied in the UK are summarised and an indication of their effectiveness on *E. amylovora* is provided. The description of the risk mitigation measures currently applied in UK is provided in Table 5.

No.	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Certified material	Yes	<u>Evaluation</u>: Potential *E. amylovora* infections could be detected, if it is not latent, though low initial infections might be overlooked. <u>Uncertainties</u>: • Though the plant material is regularly monitored for plant health issues by trained nursery staff, the details of the certification process are not given (e.g. number of plants, intensity of surveys and inspections, etc.). Specific figures on the intensity of survey (sampling effort) are not provided. • It is unknown how the rootstocks are produced.

(Continued)

No.	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
2	Phytosanitary certificates	Yes	Evaluation: All starting material have phytosanitary certificates. The procedures applied could be effective in detecting *E. amylovora* infections, though low initial infections might be overlooked. Uncertainties: • Latent infections may be overlooked.
3	Cleaning and disinfection of facilities, tools and machinery	Yes	Evaluation: General hygiene measures are undertaken as part of routine nursery production, including disinfection of tools and equipment between batches and lots. Uncertainties: • The effectiveness of the procedure of disinfection is unclear.
4	Rouging and pruning	Yes	Evaluation: Pruning can have an effect on transmission directly reducing it by removing infected branches or contributing to infections by creating wounds. Uncertainties: • The effectiveness of the procedure of disinfection of tools and machinery is unclear. • It is not clear if pruning is taking place on a regular basis.
5	Pesticide application, biological control and mechanical control	No	
6	Surveillance and monitoring	Yes	Evaluation: They appear to meet the buffer zone criteria for certain hosts plants of *E. amylovora*. But do not state that this is applicable for *Prunus* spp. According to the Dossier, hosts of *E. amylovora* younger than 3 years are tested for latent infections. For mother plants, symptoms of infections are expected to be visible. However, latent infections may be overlooked. Uncertainties: • It is not stated if *Prunus* spp. is tested in respect to the legislative requirements. • Latent infections might be overlooked.
7	Sampling and laboratory testing	Yes	Evaluation: It can be effective and useful for specific identification. Uncertainties: • There is no information on which test method is used in *Prunus* spp. to identify latent infections. • Local and low levels of infections might be overlooked.
8	Root washing	No	
9	Refrigeration and temperature control	No	
10	Pre-consignment inspection	Yes	Evaluation: It can be effective. Uncertainties: • The effectiveness of inspection of young plants. • Low or latent infections might be overlooked.

A.5.5 | Overall likelihood of pest freedom

A.5.5.1 | Reasoning for a scenario which would lead to a reasonably low number of infested consignments

- The pest was not detected on *Prunus* spp. in UK.
- Resistant *Prunus* species.
- Infection would show visible symptoms.
- Nurseries are located in pest-free areas.
- There are no other hosts plants in the surrounding areas (flowering fruit plants).
- The surrounding area is inspected effectively.
- Mother plants, rootstocks and budwood/graftwood are free of *Erwinia amylovora* due to regular handling.
- Different production areas are isolated.
- Nursery is free of wild plants.
- Handling deselects infected plants.
- Inspections and surveillance are effective.

A.5.5.2 | Reasoning for a scenario which would lead to a reasonably high number of infested consignments

- Wilde distribution within UK.
- Total eradication from widespread occurrence of the pest is impossible.
- The pathogen is present in the region with selected *Prunus* species production (the nurseries are in the infected area).
- Nurseries get planting material from infested regions.
- The species and variety of *Prunus* spp. grown is more susceptible.
- There are host plants in the surroundings of the nursery of mother plants, e.g. shrubs.
- Rootstocks and buds may be infected but without symptoms.
- Regular inspections are not effective, might overlook latent infections or initial infections immediately before export.
- Inspections and surveillance are not effective, might overlook infections in private gardens.
- Treatments are only applied in case of possible infections.
- Pesticide treatments are not effective.
- Materials used (e.g. tools) are not disinfected and lead to further infections due to wounds.

A.5.5.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infested consignments (Median)

- High uncertainty in spread of the bacteria.
- Inspections are effective and the disease is easy to detect.

A.5.5.4 | Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/interquartile range)

- Pest pressure in the production area is uncertain.
- Data on efficacy of inspection is not provided.

A.5.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Erwinia amylovora* on *Prunus* spp.

The elicited and fitted values for *Erwinia amylovora* agreed by the Panel are shown in Tables A.19–A.25 and in the Figures A.10–A.12.

TABLE A.19 Elicited and fitted values of the uncertainty distribution of pest infestation by *Erwinia amylovora* per 10,000 potted plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					10		20		30					50
EKE	0.733	1.53	2.67	4.72	7.25	10.3	13.3	19.5	26.5	30.4	35.0	39.6	44.1	47.3	50.1

Note: The EKE results is the *BetaGeneral* (1.2604, 2.0485, 0, 55) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested bundles the pest freedom was calculated (i.e. = 10,000 − number of infested plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.20.

TABLE A.20 The uncertainty distribution of plants free of *Erwinia amylovora* per 10,000 potted plants calculated by Table A.19.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9950					9970		9980		9990					10,000
EKE results	9950	9953	9956	9960	9965	9970	9974	9980	9987	9990	9993	9995	9997	9998	9999

Note: The EKE results are the fitted values.

TABLE A.21 Elicited and fitted values of the uncertainty distribution of pest infestation by *Erwinia amylovora* per 10,000 bare root plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					7		15		22					35
EKE	0.410	0.919	1.70	3.16	5.03	7.32	9.61	14.4	19.6	22.5	25.8	28.9	31.7	33.6	35.0

Note: The EKE results is the *BetaGeneral* (1.1396, 1.6244, 0, 37) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested bundles the pest freedom was calculated (i.e. = 10,000 − number of infested plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.22.

TABLE A.22 The uncertainty distribution of plants free of *Erwinia amylovora* per 10,000 bare root plants calculated by Table A.21.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9965					9978		9985		9993					10,000
EKE results	9965	9966	9968	9971	9974	9977	9980	9986	9990	9993	9995	9997	9998	9999	10,000

Note: The EKE results are the fitted values.

TABLE A.23 Elicited and fitted values of the uncertainty distribution of pest infestation by *Erwinia amylovora* per 10,000 bundles of graftwood.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0					4		9		15					25
EKE	0.131	0.343	0.714	1.49	2.59	4.04	5.56	8.93	12.8	15.1	17.6	20.1	22.3	23.8	25.0

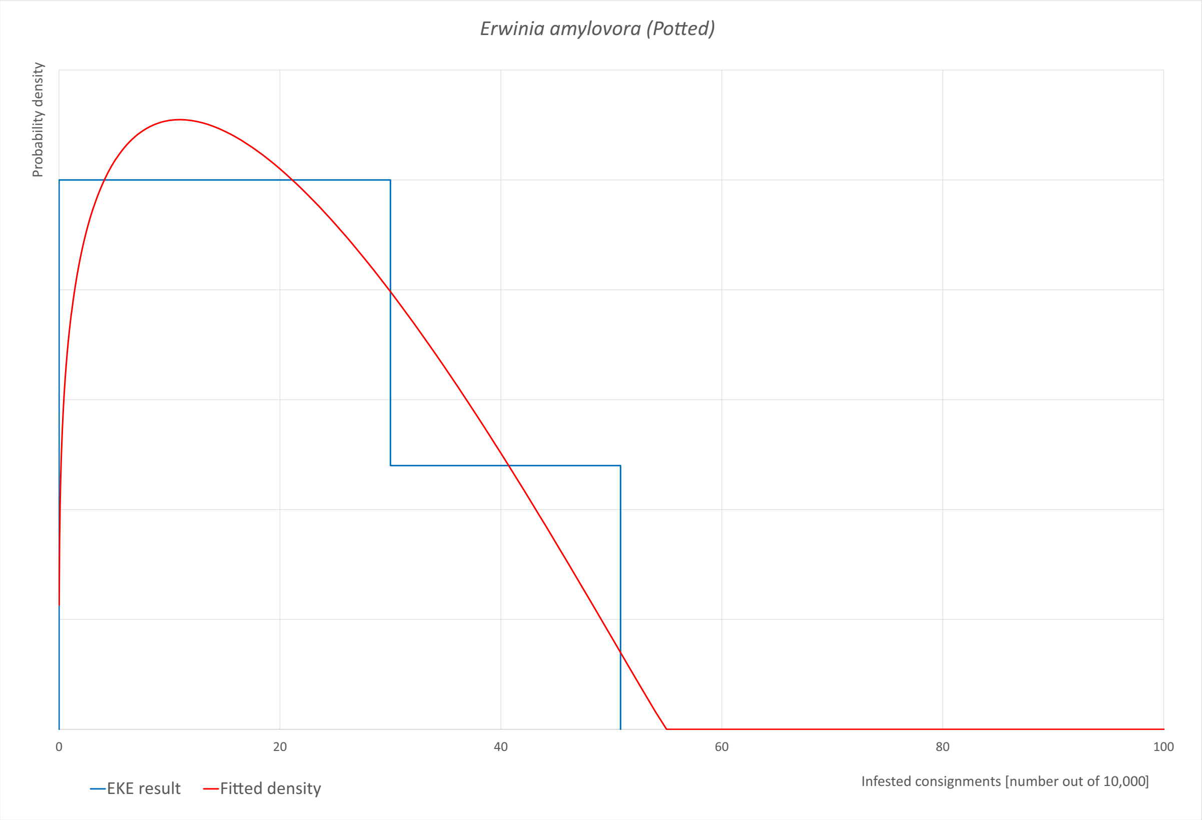
Note: The EKE results is the *BetaGeneral* (0.95152, 1.6009, 0, 26.6) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested bundles the pest freedom was calculated (i.e. = 10,000 – number of infested plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.24.

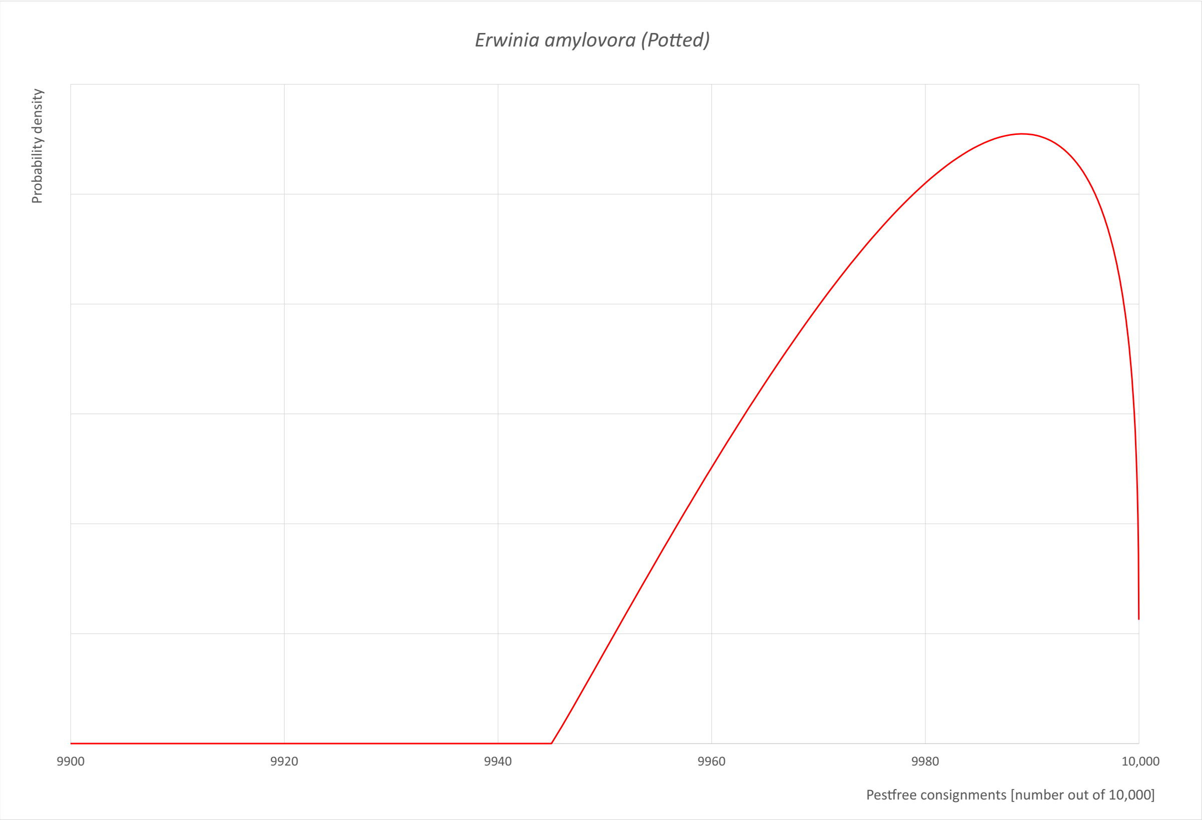
TABLE A.24 The uncertainty distribution of plants free of *Erwinia amylovora* per 10,000 bundles of graftwood calculated by Table A.23.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9975					9985		9991		9996					10,000
EKE results	9975	9976	9978	9980	9982	9985	9987	9991	9994	9996	9997	9998.5	9999.3	9999.7	9999.9

Note: The EKE results are the fitted values.

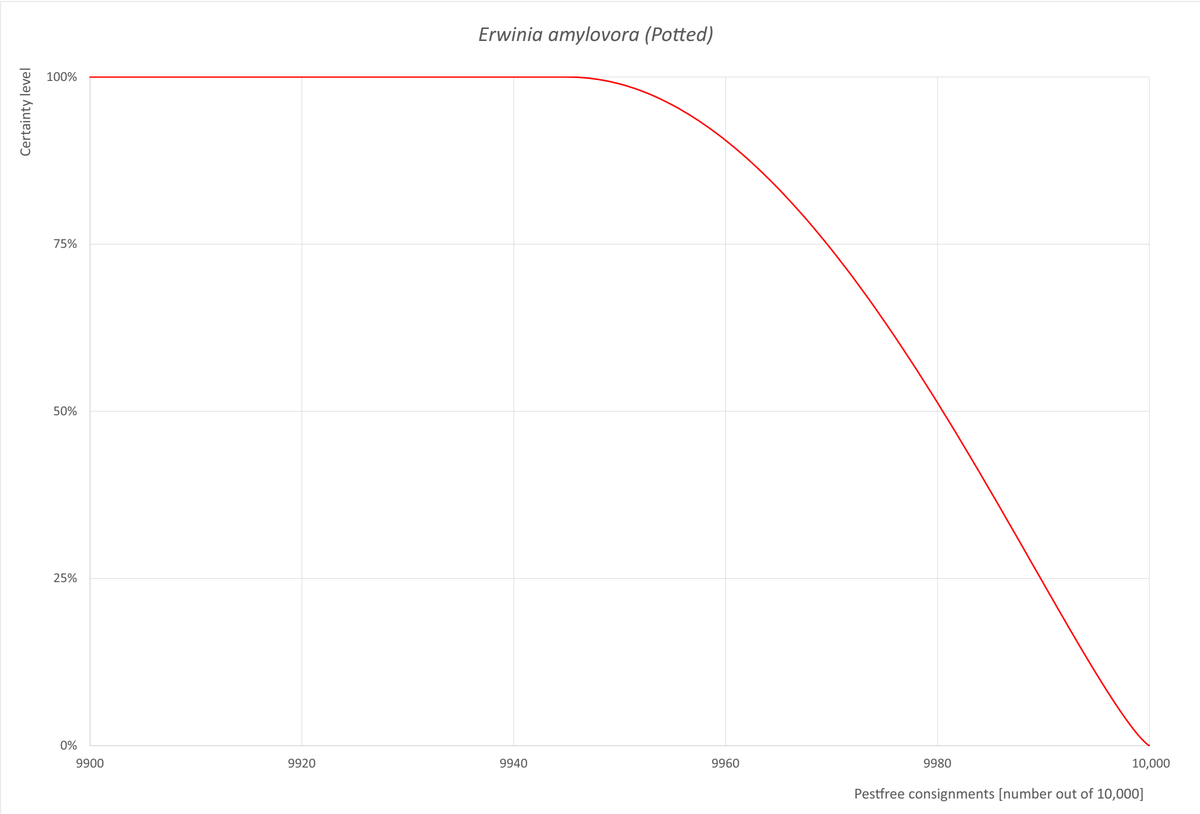


(A)



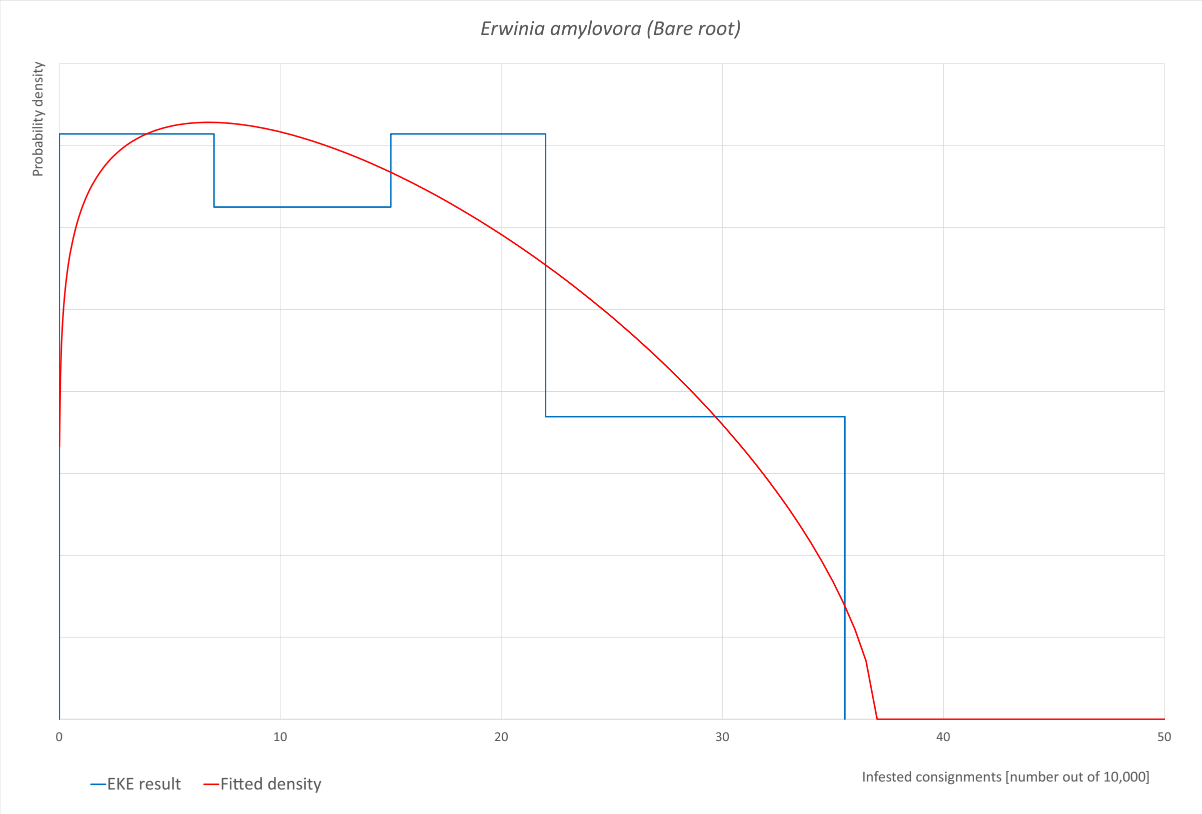
(B)

FIGURE A.10 (Continued)

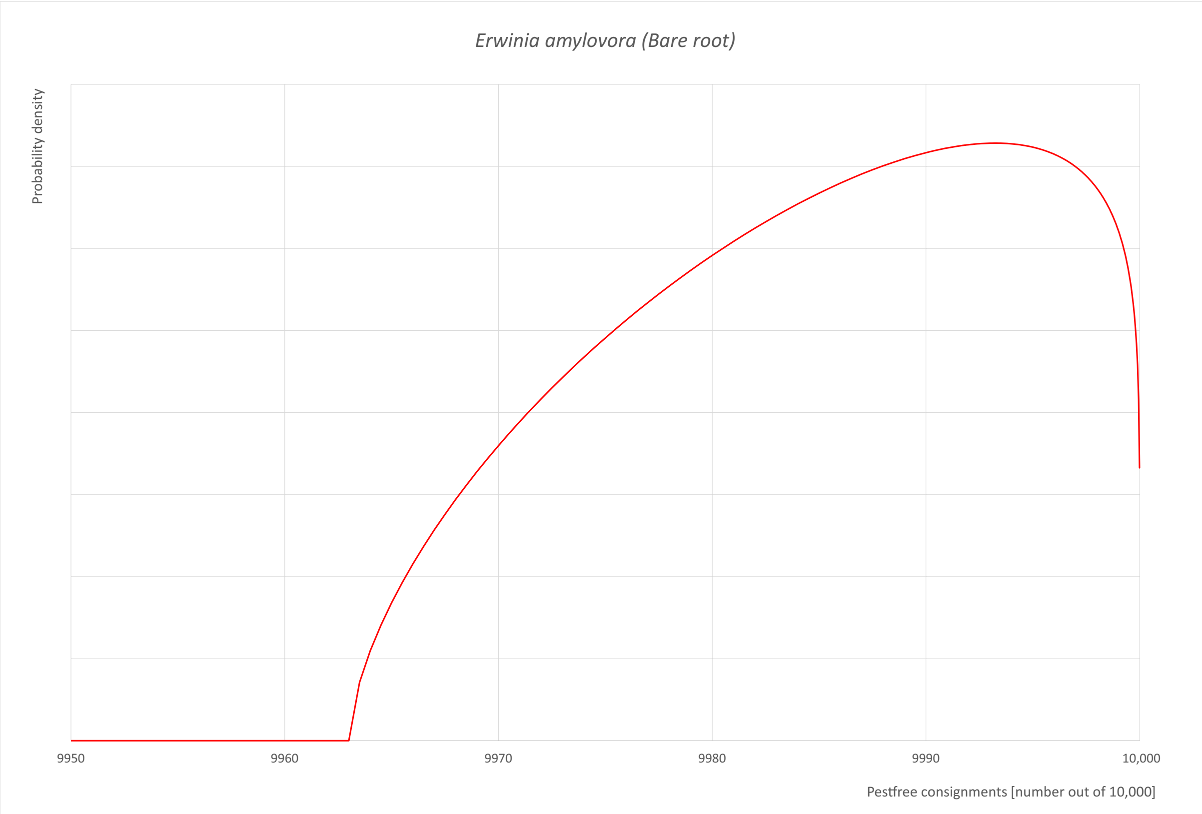


(C)

FIGURE A.10 (A) Elicited uncertainty of pest infestation per 10,000 bundles (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 bundles per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 bundles.

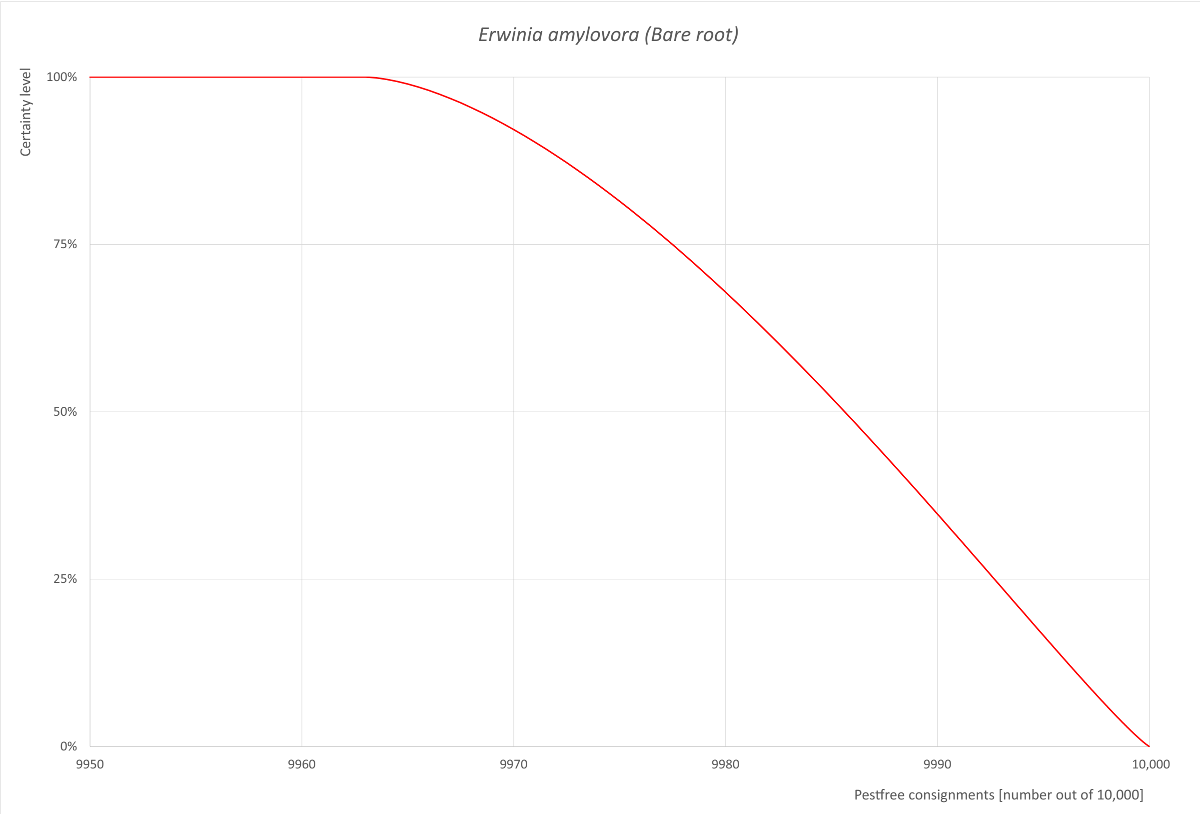


(A)



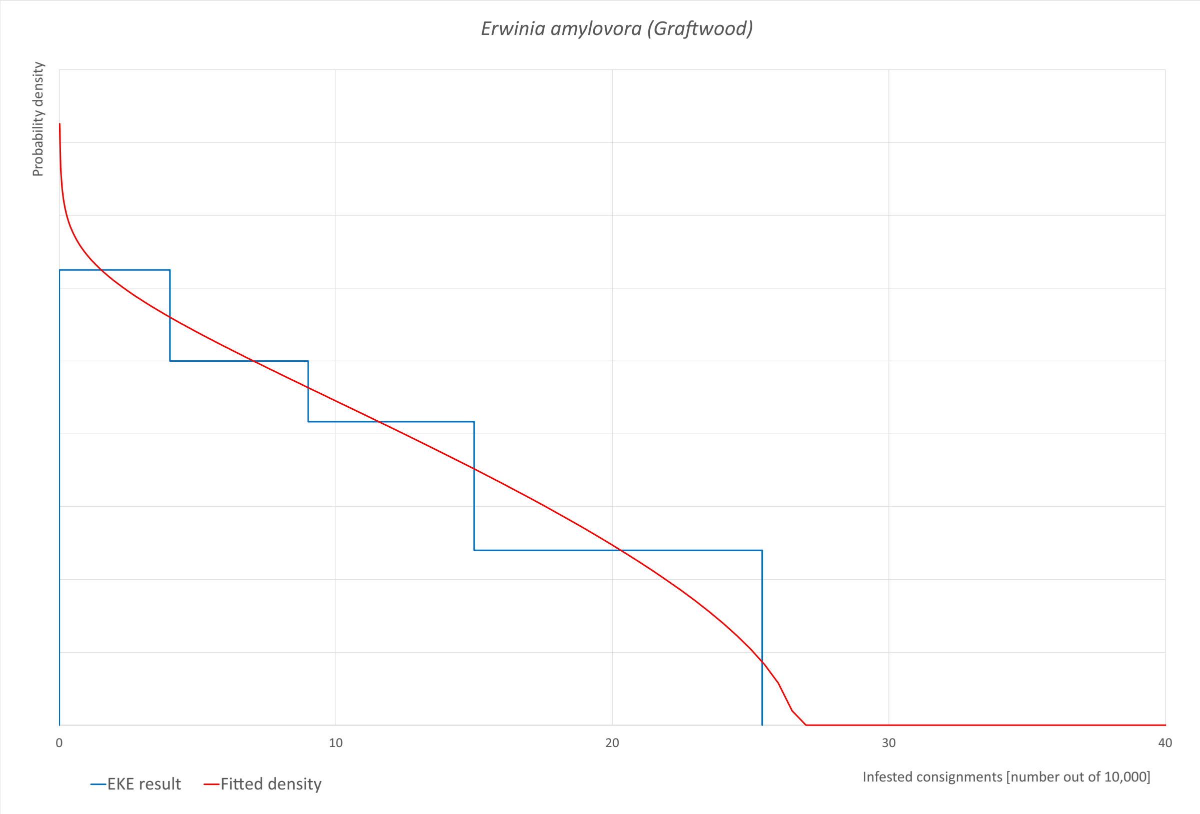
(B)

FIGURE A.11 (Continued)

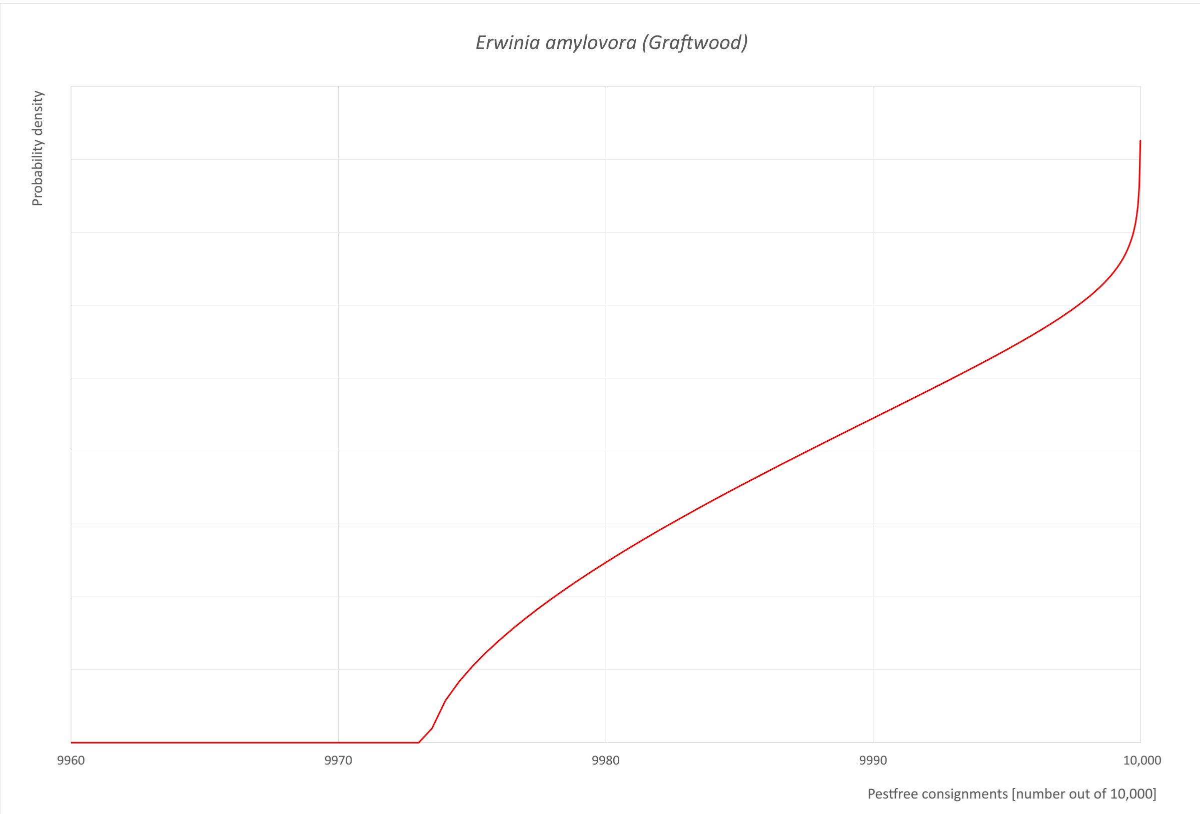


(C)

FIGURE A.11 (A) Elicited uncertainty of pest infestation per 10,000 bundles (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 bundles per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 bundles.

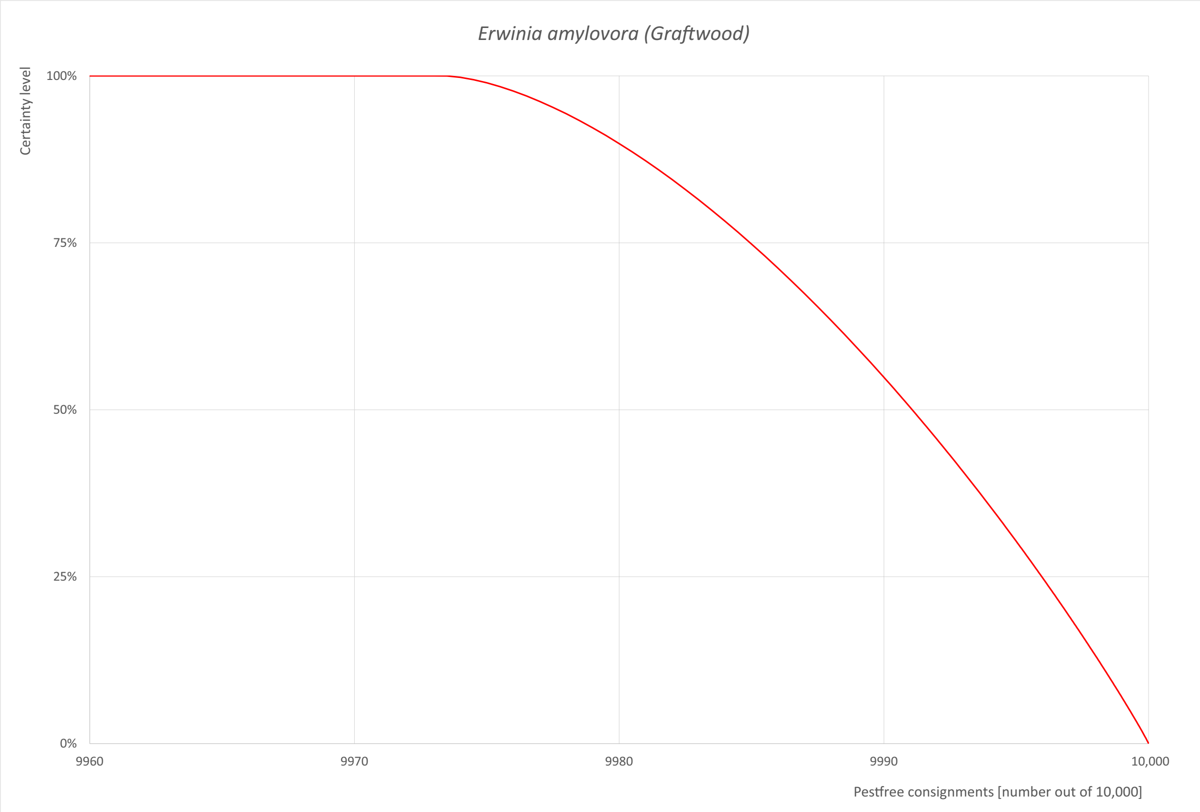


(A)



(B)

FIGURE A.12 (Continued)



(C)

FIGURE A.12 (A) Elicited uncertainty of pest infestation per 10,000 bundles (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 bundles per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 bundles.

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A.6 | *SCIRTOTHRIPS DORSALIS*

A.6.1 | Organism information

Taxonomic information	Current valid scientific name: *Scirtothrips dorsalis* Synonyms: *Anaphothrips andreae, Anaphothrips dorsalis, Anaphothrips fragariae, Heliothrips minutissimus, Neophysopus fragariae, Scirtothrips andreae, Scirtothrips dorsalis padmae, Scirtothrips fragariae, Scirtothrips minutissimus, Scirtothrips padmae* Name used in the EU legislation: *Scirtothrips dorsalis* Hood [SCITDO] Order: Thysanoptera Family: Thripidae Common name: Assam thrips, chilli thrips, flower thrips, strawberry thrips, yellow tea thrips, castor thrips Name used in the Dossier: *Scirtothrips dorsalis*
Group	Insects
EPPO code	SCITDO
Regulated status	The pest is listed in Annex II of Commission Implementing Regulation (EU) 2019/2072 as *Scirtothrips dorsalis* Hood [SCITDO]. *Scirtothrips dorsalis* is included in the EPPO A2 list (EPPO, online_a). The species is a quarantine pest in Israel, Mexico, Morocco and Tunisia. It is on A1 list of Brazil, Chile, Egypt, Kazakhstan, Russia, Turkey, Ukraine, United Kingdom and EAEU (Eurasian Economic Union – Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia). It is on A2 list of Bahrain (EPPO, online_b).
Pest status in the UK	*Scirtothrips dorsalis* was found for the first time in the UK in December 2007 in a greenhouse (Palm House) at Royal Botanic Garden Kew in South England (Scott-Brown et al., 2018). Since 2008 the discovered population has been under official control by the plant health authorities with the objective of achieving complete eradication (Collins, 2010). Eradication measures were applied and since 2019 the pest has no longer been found (EPPO, online_c). EPPO reports it in the UK as: Absent, pest eradicated (EPPO, online_c).
Pest status in the EU	*Scirtothrips dorsalis* is present under eradication in the Netherlands and Spain (CABI, online; EPPO, online_c). According to Europhyt Oubreaks database (online) there were three outbreaks, which are under eradication: 1. in the Netherlands (2019) on plants for planting of *Podocarpus*; 2. in Spain (2016) on plants of citrus and pomegranate; 3. in Spain (2019) in mango greenhouses. *Scirtothrips dorsalis* is continuously intercepted in the EU points-of-entry on different commodities: plants for planting; cut flowers and branches with foliage; fruits and vegetables (EUROPHYT/TRACES-NT, online).
Host status on *Prunus* spp	*Prunus* spp. are reported as hosts of *Scirtothrips dorsalis* (Muraoka, 1988; Ohkubo, 1995).
PRA information	Available Pest Risk Assessments: – CSL pest risk analysis for *Scirtothrips dorsalis* (MacLeod and Collins, 2006); – Pest Risk Assessment *Scirtothrips dorsalis* (Vierbergen and van der Gaag, 2009); – Scientific Opinion on the pest categorisation of *Scirtothrips dorsalis* (EFSA PLH Panel, 2014); – UK Risk Register Details for *Scirtothrips dorsalis* (DEFRA, online).
Other relevant information for the assessment	
Biology	*Scirtothrips dorsalis* is a thrips present in Africa (Cote d'Ivoire, Kenya, Uganda), Asia (Bangladesh, Brunei Darussalam, China, India, Indonesia, Iran, Israel, Japan, Malaysia, Myanmar, North Korea, Pakistan, Philippines, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam), Europe (Netherlands, Spain, UK), North America (Caribbean, Florida, Georgia, Hawaii, Mexico, Texas), Oceania (Australia, Papua New Guinea, Solomon Islands) and South America (Brazil, Colombia, French Guiana, Suriname, Venezuela) (CABI, online; EPPO, online_c). In the literature its origin is contradictory, it is reported as either native to Asia, Australasia or South Africa. For more details, refer to Mound and Palmer (1981), Seal et al. (2006), Hoddle et al. (2008), Kumar et al. (2013) and CABI (online). According to Dickey et al. (2015) *S. dorsalis* is a species complex that includes at least nine cryptic species and two morphologically distinguishable species (*S. aff. dorsalis* and *S. oligochaetus*). The information about the UK populations is not available. *Scirtothrips dorsalis* develops through five life stages: egg, larva (two instars), prepupa, pupa and adult (Dev, 1964; Kumar et al., 2013). They can be found on all the aboveground plant parts (Kumar et al., 2014), and they damage young leaves, buds, tender stems and fruits by sucking tender tissues with their stylets (Kumar et al., 2013). Temperature thresholds for development are 9.7°C and 32°C, with 265 degree-days required for development from egg to adult (Tatara, 1994). The adult can live up to 13–15 days (Kumar et al., 2013, citing others). *Scirtothrips dorsalis* can have annually up to 8 generations in Japan (Tatara, 1994). In the USA it was estimated by a degree day model that in some of the southern states the thrip can potentially have up to 18 generations (Nietschke et al., 2008).

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	Scirtothrips dorsalis can reproduce both sexually and by haplo-diploid parthenogenesis, with females developing from fertilised and males from unfertilised eggs (Dev, 1964). Female can lay between 60 and 200 eggs (Seal and Klassen, 2012), which are inserted into soft plant tissues of buds and young leaves near the mid rib or into the veins. But sometimes they are also laid into older leaves (Dev, 1964). The eggs hatch in 6–8 days (Seal and Klassen, 2012). Eggs are glassy white about 0.25 mm long and 0.1 mm wide. First and second instar larvae are white, yellow to light orange and their length size ranges between 0.29–0.32 and 0.48–0.59 mm, respectively (Dev, 1964). Prepupa is yellowish and pupa dark yellow (CABI, online) with 0.59–0.63 mm in length (Dev, 1964). Adults are pale yellow to greyish white in colour (Seal and Klassen, 2012). Female is approximately 1.05 mm long and 0.19 mm wide. Males are smaller 0.71 mm long and 0.14 mm wide (Dev, 1964). Larvae and adults tend to gather near the mid-vein or near the damaged part of leaf tissue. Pupae are found in the leaf litter, on the axils of the leaves, in curled leaves or under the calyx of flowers and fruits (Kumar et al., 2013; MacLeod and Collins, 2006). Prepupa and pupa stages never feed (Tatara, 1994). Adults fly actively for short distances – tens of meters (Masui, 2007_a) and passively on wind currents, which enables long-distance spread (EFSA PLH Panel, 2014). They overwinter as adults (Okada and Kudo, 1982) in bark, litter, soil and protected in plant parts (Holtz, 2006; Shibao, 1991;). The thrips cannot survive if the temperature remains below −4°C for 5 or more days (Nietschke et al., 2008). *Scirtothrips dorsalis* is a vector of plant viruses including capsicum chlorosis virus (CaCV), chilli leaf curl virus (CLC), melon yellow spot virus (MYSV), peanut chlorotic fan virus (PCFV), peanut necrosis virus (PBNV), peanut yellow spot virus (PYSV), tobacco streak virus (TSV) and watermelon silver mottle virus (WsMoV) (Kumar et al., 2013; Satyanarayana et al., 1996; Seal et al., 2010; Rao et al., 2003). *Scirtothrips dorsalis* causes economic loses to chilli (*Capsicum annuum*) in India with yield loss estimated between 61% and 74% (Kumar et al., 2013, citing others), mango in Malaysia (Aliakbarpour et al., 2010), vegetables in China and the USA (Reitz et al., 2011), tea, grapevine and citrus in Japan (Tatara, 1994, citing others; Masui, 2007_b). Possible pathways of entry for *S. dorsalis* are plants for planting, cut flowers, fruits, vegetables, soil and growing media (EFSA PLH Panel, 2014).	
Symptoms	**Main type of symptoms**	According to Dev (1964) and Kumar et al. (2013, 2014) main symptoms caused by *S. dorsalis* are: – 'sandy paper lines' on the epidermis of the leaves; – leaf crinkling and upwards leaf curling; – leaf size reduction; – discoloration of buds, flowers and young fruits; – silvering of the leaf surface; – linear thickenings of the leaf lamina; – brown frass markings on the leaves and fruits; – corky tissues on fruits; – grey to black markings on fruits; – fruit distortion; – early senescence of leaves; – defoliation. When the population is high, thrips may feed on the upper surfaces of leaves and cause defoliation and yield loss (Kumar et al., 2013). There is no information on the symptoms caused to *Prunus* plants.
	Presence of asymptomatic plants	Plant damage might not be obvious in early infestation or during dormancy (due to absence of leaves). The presence of *S. dorsalis* on the plants could hardly be observed.
	Confusion with other pests	Plants infested by *S. dorsalis* appear similar to plants damaged by the feeding of other thrips and broad mites (Kumar et al., 2013). Due to small size and morphological similarities within the genus, the identification of *S. dorsalis*, using traditional taxonomic keys, is difficult. The most precise identification of the pest is combination of molecular and morphological methods (Kumar et al., 2013).
Host plant range	*Scirtothrips dorsalis* is a polyphagous pest with more than 100 reported hosts (Kumar et al., 2013). The pest can infect many more plant species, but they are not considered to be true hosts, since the pest cannot reproduce on all of them (EFSA PLH Panel, 2014). Some of the many hosts of *S. dorsalis* are (alphabetically): *Abelmoschus esculentus*, *Acacia auriculiformis*, *Acacia brownii*, *Actinidia deliciosa*, *Allium cepa*, *Allium sativum*, *Anacardium occidentale*, *Arachis hypogaea*, *Asparagus officinalis*, *Beta vulgaris*, *Camellia sinensis*, *Capsicum annuum*, *Capsicum frutescens*, *Citrus* spp., *Citrus aurantiifolia*, *Citrus sinensis*, *Cucumis melo*, *Cucumis sativus*, *Cucurbita pepo*, *Dahlia pinnata*, *Dimocarpus longan*, *Diospyros kaki*, *Fagopyrum esculentum*, *Ficus* spp., *Ficus carica*, *Fragaria* spp., *Fragaria ananassa*, *Fragaria chiloensis*, *Glycine max*, *Gossypium* spp., *Gossypium hirsutum*, *Hedera helix*, *Helianthus annuus*, *Hevea brasiliensis*, *Hydrangea* spp., *Ipomoea batatas*, *Lablab purpureus*, *Ligustrum japonicum*, *Litchi chinensis*, *Mangifera indica*, *Melilotus indica*, *Mimosa* spp., *Morus* spp., *Nelumbo* spp., *Nelumbo lutea*, *Nelumbo nucifera*, *Nephelium lappaceum*, *Nicotiana tabacum*, *Passiflora edulis*, *Persea americana*, *Phaseolus vulgaris*, *Populus deltoides*, *Portulaca oleracea*, *Prunus* spp., *Prunus persica*, *Punica granatum*, *Pyrus* spp., *Ricinus communis*, *Rosa* spp., *Rubus* spp., *Saraca* spp., *Solanum* spp., *Solanum lycopersicum*, *Solanum melongena*, *Solanum nigrum*, *Syzygium samarangense*, *Tamarindus indica*, *Viburnum* spp., *Vigna radiata*, *Vitis* spp., *Vitis vinifera*, *Zea mays* subsp. *mays* and *Ziziphus mauritiana* (CABI, online; Hodges et al., 2005; Kumar et al., 2014; Ohkubo, 1995). For a full host list refer to CABI (online), Hodges et al. (2005), Kumar et al. (2014) and Ohkubo (1995).	
Reported evidence of impact	*Scirtothrips dorsalis* is an EU quarantine pest. No information is available about damage on *Prunus* species.	

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Evidence that the commodity is a pathway	*Scirtothrips dorsalis* is continuously intercepted in the EU on different commodities including plants for planting (EUROPHYT/TRACES-NT, online) and according to EFSA PLH Panel (2014), *S. dorsalis* can travel with plants for planting. Therefore, plants for planting are possible pathways of entry for *S. dorsalis*.
Surveillance information	*Scirtothrips dorsalis* is under official control and was subjected to eradication in the greenhouse of Royal Botanic Garden Kew in the UK (Collins, 2010). Surveillance in the nursery did not result in the detection of the pest during the last 5 years.

A.6.2 | Possibility of pest presence in the nursery

A.6.2.1 | Possibility of entry from the surrounding environment

Scirtothrips dorsalis was found in a greenhouse at Kew Gardens in South England in 2007 (Scott-Brown et al., 2018) and since then it has been under official control (Dossier Section 3.0), although the last official records are from 2012. However, there is no information of the thrips being able to spread beyond the greenhouse.

The possible entry of *S. dorsalis* from surrounding environment to the nursery may occur through adult dispersal and passively on wind currents (EFSA PLH Panel, 2014).

Given that the pest is very polyphagous it could be associated with several plant species in the nursery surroundings.

Uncertainties

- Presence of the thrips in the UK.
- Possibility of spreading beyond the infested greenhouse.
- Possibility of the thrips to survive the UK winter and summer in outdoor conditions.
- If the plant species traded by the other nurseries are grown and/or stored close to the production site.

Taking into consideration the above evidence and uncertainties, the Panel cannot exclude that the pest is present in the surrounding environment and can enter the nursery, even though it was found only in one greenhouse. In the surrounding area suitable hosts are present and the pest can spread by wind and adult flight.

A.6.2.2 | Possibility of entry with new plants/seeds

Plant material is only grown by grafting and budding from mother stock held on the nursery that are grown from UK material although some plants may be obtained from the EU (mostly the Netherlands where there was an outbreak, which is under eradication).

The pest can be found on the trunk, stem, branches of plants for planting and on the leaves of rooted plants in pots and bare rooted plants. Although adults can be relatively spotted during visual inspections, young stages can be difficult to detect. The pest can be hidden inside bark cracks. In case of initial low populations, the species can be overlooked. Introduction of the pest with certified material is very unlikely.

In addition to *Prunus* spp. plants, the nursery also produces other plants and uses plant hedges. Out of them *Hedera* sp. and *Prunus spinosa* are suitable hosts of the thrips. However, there is no information on how and where the plants are produced. Therefore, if the plants are first produced in another nursery, the thrips could possibly travel with them.

According to Shibao (1991) and Holtz (2006) adults overwinter in leaf litter and potting soil. The nursery is using peat compost (Petersfield Potting Supreme – medium grade sphagnum peat), which is weed and pest free. Plants are regularly re-potted, during which the old peat compost is shaken free, roots trimmed and then the plants potted up using fresh peat (Dossier Sections 1.0 and 3.0).

Uncertainties

- Uncertain if certified material is screened for this pest.

Taking into consideration the above evidence and uncertainties, the Panel considers that it is possible for the pest to enter the nursery with new plants used for plant production in the area. The entry of the pest with new plants or seeds of *Prunus* the Panel considers as not possible.

A.6.2.3 | Possibility of spread within the nursery

Prunus plants are grown in containers outdoors in the open air.

The thrips can attack other suitable plants, mother trees present within the nursery and hedges surrounding the nursery (*Prunus* spp. and *Hedera* sp.).

The early stages of plants grown under protection are maintained in plastic polytunnels, or in glasshouses.

The thrips within the nursery can spread by adult flight, wind, infested soil or by scions from infested mother plants. Spread within the nursery through equipment and tools is not relevant.

Uncertainties

- Possibility of the thrips to survive the UK winter in outdoor conditions.
- Possibility of presence of different plant host species in the nursery.
- Possibility that polytunnels and glasshouses allow the pest to overwinter.

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, active flight or infested soil

A.6.3 | Information from interceptions

In the EUROPHYT/TRACES-NT database there are no records of notification of *Prunus* plants for planting neither from the UK nor from other countries due to the presence of *Scirtothrips dorsalis* between the years 1995 and January 2025 (EUROPHYT/TRACES-NT, online).

A.6.4 | Evaluation of the risk mitigation measures

In the table below, all risk mitigation measures currently applied in the UK are listed and an indication of their effectiveness on *S. dorsalis* is provided. The description of the risk mitigation measures currently applied in the UK is provided in the Table 5.

No.	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
1	Certified material	Yes	Evaluation: Potential *S. dorsalis* infestations are not easily detected. Considering the small size of this insect, direct visual search is insufficient. Uncertainties: • Though the plant material is regularly monitored for plant health issues by trained nursery staff, the details of the certification process are not given (e.g. number of plants, intensity of surveys and inspections, etc.). Specific figures on the intensity of survey (sampling effort) are not provided.
2	Phytosanitary certificates	Yes	Evaluation: The measure can be effective against the pest. Uncertainties: • Specific figures on the intensity of survey (sampling effort) are not provided.
3	Cleaning and disinfection of facilities, tools and machinery	No	
4	Rouging and pruning	Yes	Evaluation: Pruning can affect pest populations either directly by removal of infested branches and indirectly exposing the pest to biotic and abiotic control agents.
5	Pesticide application and biological control	Yes	Evaluation: Chemicals listed in the dossier (acetamiprid and deltamethrin) are not applied specifically targeting this pest, however they may be effective; chemical applications can affect biological control agents though. Uncertainties: • No details are given on the pesticide application schedule. • No details are provided on abundance and efficacy of the natural enemies.
6	Surveillance and monitoring	Yes	Evaluation: It can be effective, although *S. dorsalis* infestations are not easily detected. Considering the small size of this insect, direct visual search is insufficient. Uncertainties: Low initial infestations might be overlooked.
7	Sampling and laboratory testing	Yes	Evaluation: It can be effective and useful for specific identification. Uncertainties: • Low initial infestations might be overlooked.
8	Root washing	No	
9	Refrigeration and temperature control	No	

(Continued)

No.	Risk mitigation measure	Effect on the pest	Evaluation and uncertainties
10	Pre-consignment inspection	Yes	Evaluation: It can be effective, although *S. dorsalis* infestations are not easily detected. Considering the small size of this insect, direct visual search is insufficient. Uncertainties: • Though the frequency of the inspections is declared in the dossier, details on the intensity of the inspections are not provided. • Low initial infestations might be overlooked.

A.6.5 | Overall likelihood of pest freedom

A.6.5.1 | Reasoning for a scenario which would lead to a reasonably low number of infested consignments

- There is only one current outbreak of the pest in the UK approximately 150 km away from the nursery. This outbreak might have been currently eradicated.
- It is very unlikely that the pest can survive outdoors. Therefore, the presence of the pest in the surroundings of the nursery is very unlikely.
- The nursery is not an intensive plant nursery.
- The inspections, insecticide treatments, weeding and the clipping of leaves could have an effect against the pest.

A.6.5.2 | Reasoning for a scenario which would lead to a reasonably high number of infested consignments

- Although it is unlikely that the pest can survive or develop outdoors, polytunnels present in the nursery could host some plants that could be hosts of the pest.
- Although inspections are conducted very often, they will fail detection of the pest on the commodity.

A.6.5.3 | Reasoning for a central scenario equally likely to over- or underestimate the number of infested consignments (median)

- Median is very shifted to the left side (lower infestation rate) because of the low likelihood of presence of the pest in the surroundings.
- The commodity is produced outdoors and the pest is unlikely to develop out of the greenhouses.

A.6.5.4 | Reasoning for the precision of the judgement describing the remaining uncertainties (1st and 3rd quartile/interquartile range)

- The low probability of establishment of the pest outdoors results in high level of uncertainties for infestation rates below the median.
- Unlikely presence of the pest in the surroundings gives less uncertainties for rates above the median.

A.6.5.5 | Elicitation outcomes of the assessment of the pest freedom for *Scirtothrips dorsalis*

The elicited and fitted values for *Scirtothrips dorsalis* agreed by the Panel are shown in Tables A.25, A.26 and in the Figure A.13.

TABLE A.25 Elicited and fitted values of the uncertainty distribution of pest infestation by *Scirtothrips dorsalis* per 10,000 plants.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Elicited values	0.00					0.25		0.50		0.75					1.00
EKE	0.01	0.0261	0.0515	0.102	0.169	0.251	0.333	0.499	0.666	0.750	0.835	0.905	0.958	0.986	1.00

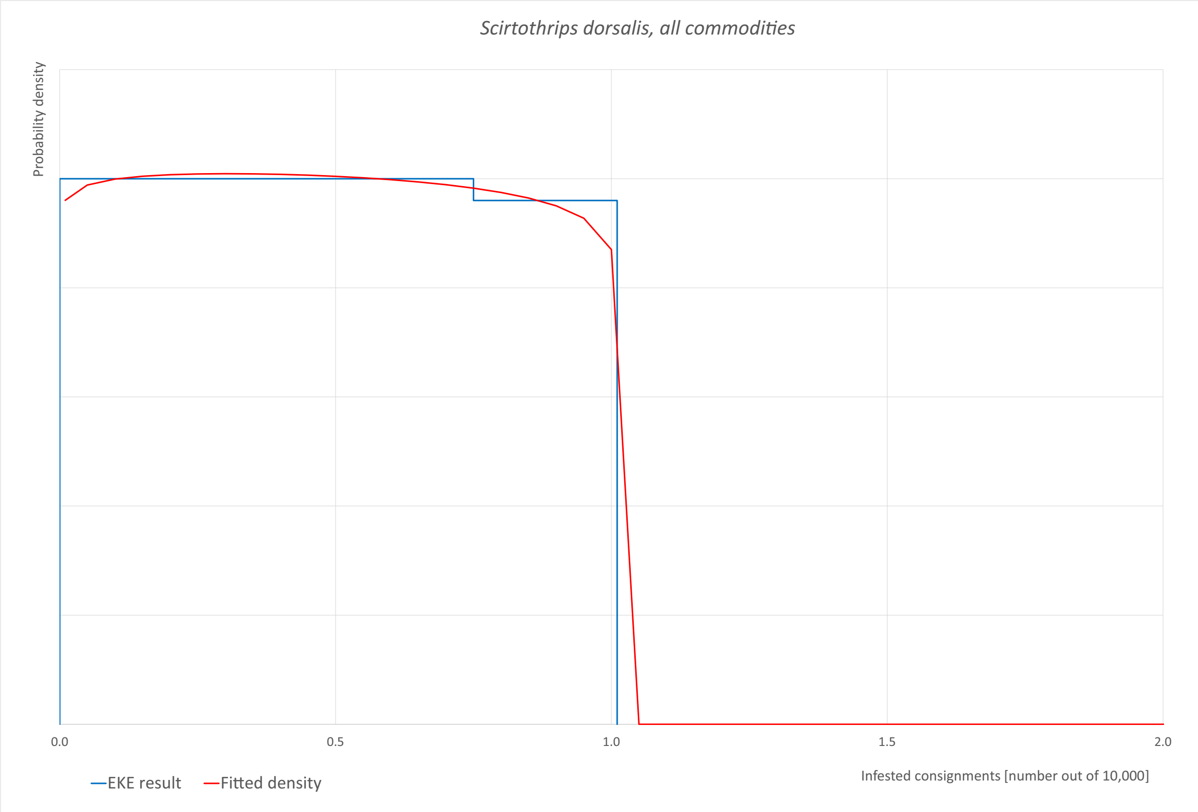
Note: The EKE results is the BetaGeneral (1.019, 1.0443, 0, 1.015) distribution fitted with @Risk version 7.6.

Based on the numbers of estimated infested plants the pest freedom was calculated (i.e. = 10,000 – number of infested plants per 10,000). The fitted values of the uncertainty distribution of the pest freedom are shown in Table A.26.

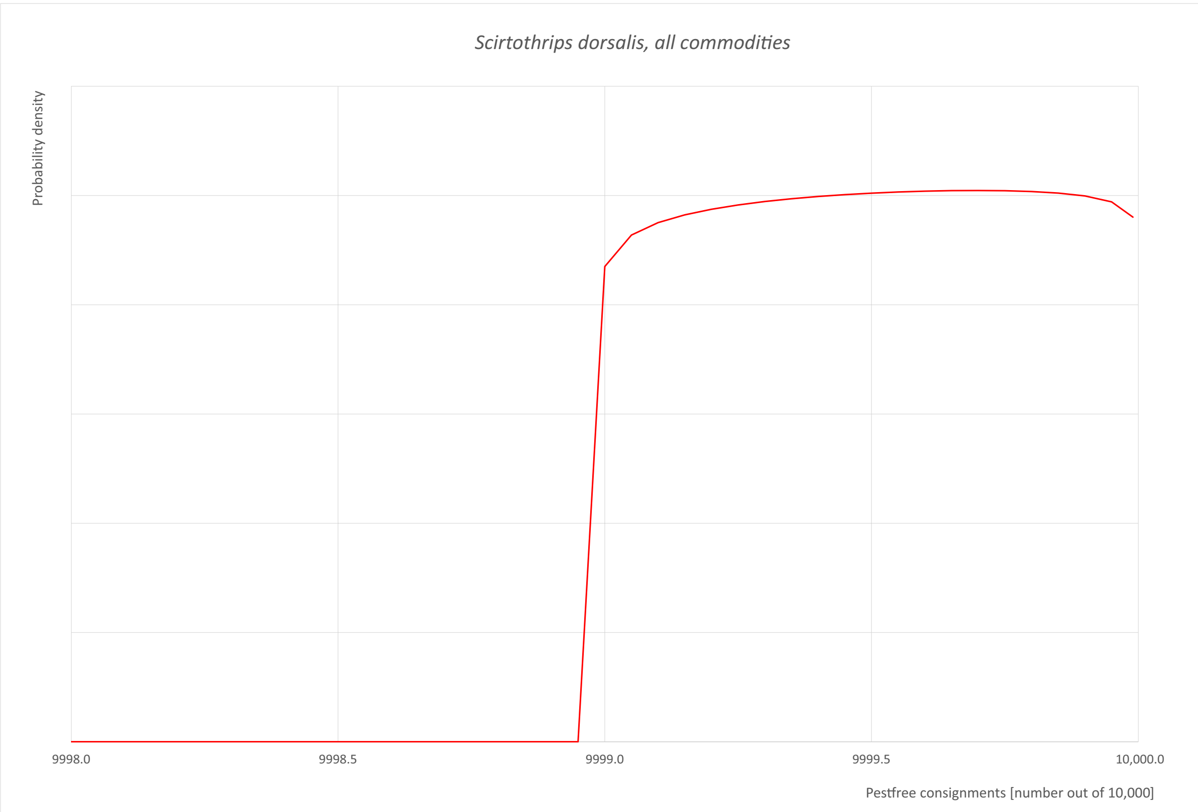
TABLE A.26 The uncertainty distribution of plants free of *Scirtothrips dorsalis* per 10,000 plants calculated by Table A.25.

Percentile	1%	2.5%	5%	10%	17%	25%	33%	50%	67%	75%	83%	90%	95%	97.5%	99%
Values	9999.00					9999.25		9999.50		9999.75					10000.00
EKE results	9999.00	9999.01	9999.04	9999.09	9999.16	9999.25	9999.33	9999.50	9999.67	9999.75	9999.83	9999.90	9999.95	9999.97	9999.99

Note: The EKE results are the fitted values.

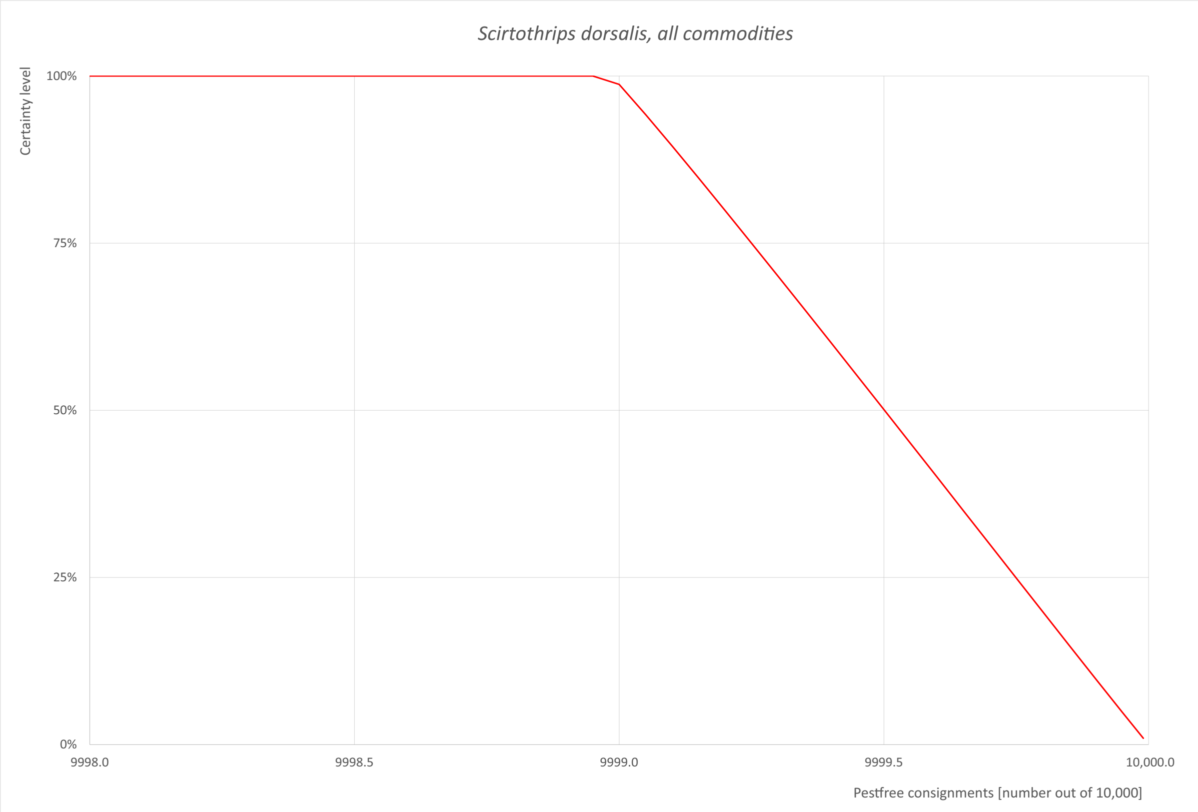


(A)



(B)

FIGURE A.13 (Continued)



(C)

FIGURE A.13 (A) Elicited uncertainty of pest infestation per 10,000 plants (histogram in blue – vertical blue line indicates the elicited percentile in the following order: 1%, 25%, 50%, 75%, 99%) and distributional fit (red line); (B) uncertainty of the proportion of pest-free plants per 10,000 (i.e. = 1 – pest infestation proportion expressed as percentage); (C) descending uncertainty distribution function of pest infestation per 10,000 plants.

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APPENDIX B

Web of Science All Databases Search String

In the appendices below the search strings used in Web of Science are reported. In total, 3610 papers were retrieved. Titles and abstracts were screened, and pests were added to the list of pests (see Appendix D).

Web of Science All databases	*("Prunus armeniaca" OR "P. armeniaca" OR "apricot tree$"); ("Prunus avium" OR "P. avium" OR "sweet cherry tree$"); ("Prunus cerasifera" OR "P. cerasifera" OR "Myrobalan"); ("Prunus domestica" OR "P. domestica" OR "European plum"); ("Prunus incisa" OR "P. incisa" OR "Fuji cherry"); ("Prunus insititia" OR "P. insititia" OR "damson"); ("Prunus persica" OR "P. persica" OR "peach tree$"); ("Prunus tomentosa" OR "P. tomentosa" OR "Nanking cherry"); ("Prunus pseudocerasus" OR "P. pseudocerasus" OR "Chinese fruiting cherry" OR "Chinese sour cherry")* *AND* *("pathogen*" OR "fung*" OR "oomycet*" OR "myce*" OR "disease$" OR "infecti*" OR "damag*" OR "symptom*" OR "pest$" OR "vector" OR "host plant$" OR "host-plant$" OR "host" OR "root lesion$" OR "decline$" OR "infestation$" OR "damage$" OR "dieback*" OR "die back*" OR "die-back*" OR "blight$" OR "canker" OR "scab$" OR "rot" OR "rots" OR "rotten" OR "damping-off" OR "smut" OR "mould" OR "mold" OR nematod* OR "root knot" OR "root-knot" OR root tip OR cyst$ OR "dagger" OR "plant parasitic" OR "root feeding" OR "root$ feeding" OR "plant$parasitic" OR "root lesion$" OR damage$ OR infestation$ OR symptom* OR pest$ OR pathogenic bacteria OR mycoplasma* OR bacteri* OR phytoplasma* OR wilt$ OR wilted OR canker OR witch* OR yellowing OR leafroll OR bacterial gall OR crown gall OR spot OR blast OR pathogen* OR virus* OR viroid* OR disease$ OR infecti* OR damag* OR symptom* OR pest$ OR decline$ OR infestation$ OR damage$ OR virosis OR canker OR blister$ OR mosaic OR "leaf curl" OR "latent" OR insect$ OR mite$ 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 caterpillar$ OR "foliar feeder$" OR "root feeder$")* *NOT* *("heavy metal$" OR "pollut*" OR "weather" OR "propert*" OR probes OR "spectr*" OR "antioxidant$" OR "transformation" OR "RNA" OR "peach palm$" OR peel OR resistance OR gene OR DNA OR "Secondary plant metabolite$" OR metabolite$ OR Catechin OR "Epicatechin" OR "Rutin" OR "Phloridzin" OR "Chlorogenic acid" OR "Caffeic acid" OR "Phenolic compounds" OR "Quality" OR "Appearance" OR Postharvest OR Antibacterial OR Abiotic OR Storage OR Pollin* OR Ethylene OR Thinning OR fertil* OR Mulching OR Nutrient$ OR Pruning 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$")*

Appendix B.1 – Search string for *Prunus armeniaca*
Appendix B.2 – Search string for *Prunus avium*
Appendix B.3 – Search string for *Prunus cerasifera*
Appendix B.4 – Search string for *Prunus domestica*
Appendix B.5 – Search string for *Prunus incisa*
Appendix B.6 – Search string for *Prunus insititia*
Appendix B.7 – Search string for *Prunus persica*
Appendix B.8 – Search string for *Prunus pseudocerasus*
Appendix B.9 – Search string for *Prunus tomentosa*
Appendices B.1–B.9 can be found in the online version of this output (in the 'Supporting information' section)

APPENDIX C

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

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

	Pest name	EPPO code	Group	Pest present in the *UK*	Present in the EU	Pest can be associated with the commodity	Impact	Justification for inclusion in this list
1	*Diplodia vulgaris*		Fungi	Yes	Not known to occur	Yes	Uncertain	Taxonomy of this fungus is uncertain
2	*Eriophyes emarginatae*	ERPHEM	Insect	Intercepted	Restricted	Yes	Uncertain	Distribution in UK is uncertain.

APPENDIX D

Excel file with the pest list of relevant *Prunus* spp.

Appendix D can be found in the online version of this output (in the 'Supporting information'section).