SCIENTIFIC OPINION

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Pest categorisation of non-EU viruses and viroids of *Vitis* L.

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Abstract

Following a request from the EU Commission, the Panel on Plant Health addressed the pest categorisation of the viruses and viroids of *Vitis* L. determined as being either non-EU or of undetermined standing in a previous EFSA opinion. These infectious agents belong to different genera and are heterogeneous in their biology. With the exclusion of grapevine virus 101-14.N.23.9.1/South Africa/2009 for which very limited information exists, the pest categorisation was completed for 30 viruses or viroids having acknowledged identities and available detection methods. All these viruses are efficiently transmitted by vegetative propagation techniques, with plants for planting representing the major pathway for long-distance dispersal and thus considered as the major pathway for potential entry. Depending on the virus, additional pathway(s) can also be seeds, pollen and/or vector(s). Most of the viruses categorised here are known to infect only one or few plant genera, but some of them have a wide host range, thus extending the possible entry pathways. Grapevine yellow speckle viroid 2, blueberry leaf mottle virus, grapevine Ajinashika virus, grapevine Anatolian ringspot virus, grapevine berry inner necrosis virus, grapevine deformation virus, grapevine fabavirus, grapevine red blotch virus, grapevine stunt virus, grapevine Tunisian ringspot virus, grapevine vein-clearing virus, temperate fruit decay-associated virus, peach rosette mosaic virus, tobacco ringspot virus, tomato ringspot virus meet all the criteria evaluated by EFSA to qualify as potential Union quarantine pests (QPs). With the exception of impact for the EU territory, on which the Panel was unable to conclude, blackberry virus S, grapevine geminivirus A, grapevine leafroll-associated virus 7, grapevine leafroll-associated virus 13, grapevine satellite virus, grapevine virus E, grapevine virus I, grapevine virus J, grapevine virus S, summer grape enamovirus, summer grape latent virus satisfy all the other criteria to be considered as potential Union QPs. Australian grapevine viroid, grapevine cryptic virus 1, grapevine endophyte endornavirus and wild vitis virus 1 do not meet all the criteria evaluated by EFSA to be regarded as potential Union QPs because they are not known to cause an impact on *Vitis*. For several viruses, especially those recently discovered, the categorisation is associated with high uncertainties mainly because of the absence of data on their biology, distribution and impact. Since this opinion addresses specifically non-EU viruses, in general these viruses do not meet the criteria assessed by EFSA to qualify as a potential Union regulated non-quarantine pests.

Keywords: European Union, pest risk, plant health, plant pest, quarantine, grapevine virus, grapevine viroid

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1. Introduction

1.1. Background and Terms of Reference as provided by the requestor

1.1.1. Background

Council Directive 2000/29/EC[1] on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community establishes the present European Union plant health regime. The Directive lays down the phytosanitary provisions and the control checks to be carried out at the place of origin on plants and plant products destined for the Union or to be moved within the Union. In the Directive's 2000/29/EC annexes, the list of harmful organisms (pests) whose introduction into or spread within the Union is prohibited, is detailed together with specific requirements for import or internal movement.

Following the evaluation of the plant health regime, the new basic plant health law, Regulation (EU) 2016/2031[2] on protective measures against pests of plants, was adopted on 26 October 2016 and will apply from 14 December 2019 onwards, repealing Directive 2000/29/EC. In line with the principles of the above mentioned legislation and the follow-up work of the secondary legislation for the listing of EU-regulated pests, EFSA is requested to provide pest categorisations of the harmful organisms included in the annexes of Directive 2000/29/EC, in the cases where recent pest risk assessment/pest categorisation is not available.

1.1.2. Terms of reference

EFSA is requested, pursuant to Article 22(5.b) and Article 29(1) of Regulation (EC) No 178/2002[3], to provide scientific opinion in the field of plant health.

EFSA is requested to prepare and deliver a pest categorisation (step 1 analysis) for each of the regulated pests included in the appendices of the annex to this mandate. The methodology and template of pest categorisation have already been developed in past mandates for the organisms listed in Annex II Part A Section II of Directive 2000/29/EC. The same methodology and outcome is expected for this work as well.

The list of the harmful organisms included in the annex to this mandate comprises 133 harmful organisms or groups. A pest categorisation is expected for these 133 pests or groups and the delivery of the work would be stepwise at regular intervals through the year as detailed below. First priority covers the harmful organisms included in Appendix 1, comprising pests from Annex II Part A Section I and Annex II Part B of Directive 2000/29/EC. The delivery of all pest categorisations for the pests included in Appendix 1 is June 2018. The second priority is the pests included in Appendix 2, comprising the group of *Cicadellidae* (non-EU) known to be vector of Pierce's disease (caused by *Xylella fastidiosa*), the group of *Tephritidae* (non-EU), the group of potato viruses and virus-like organisms, the group of viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.. and the group of *Margarodes* (non-EU species). The delivery of all pest categorisations for the pests included in Appendix 2 is end 2019. The pests included in Appendix 3 cover pests of Annex I part A section I and all pests categorisations should be delivered by end 2020.

For the above mentioned groups, each covering a large number of pests, the pest categorisation will be performed for the group and not the individual harmful organisms listed under "such as" notation in the Annexes of the Directive 2000/29/EC. The criteria to be taken particularly under consideration for these cases, is the analysis of host pest combination, investigation of pathways, the damages occurring and the relevant impact.

Finally, as indicated in the text above, all references to 'non-European' should be avoided and replaced by 'non-EU' and refer to all territories with exception of the Union territories as defined in Article 1 point 3 of Regulation (EU) 2016/2031.

[1] Council Directive 2000/29/EC of 8 May 2000 on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community. OJ L 169/1, 10.7.2000, p. 1–112.

[2] Regulation (EU) 2016/2031 of the European Parliament of the Council of 26 October 2016 on protective measures against pests of plants. OJ L 317, 23.11.2016, p. 4–104.

[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, 1.2.2002, p. 1–24.

1.1.2.1. Terms of Reference: Appendix 1

List of harmful organisms for which pest categorisation is requested. The list below follows the annexes of Directive 2000/29/EC.

Annex IIAI

(a) Insects, mites and nematodes, at all stages of their development

Aleurocantus spp.
Anthonomus bisignifer (Schenkling)
Anthonomus signatus (Say)
Aschistonyx eppoi Inouye
Carposina niponensis Walsingham
Enarmonia packardi (Zeller)
Enarmonia prunivora Walsh
Grapholita inopinata Heinrich
Hishomonus phycitis
Leucaspis japonica Ckll.
Listronotus bonariensis (Kuschel)
Numonia pyrivorella (Matsumura)
Oligonychus perditus Pritchard and Baker
Pissodes spp. (non-EU)
Scirtothrips aurantii Faure
Scirtothrips citri (Moultex)
Scolytidae spp. (non-EU)
Scrobipalpopsis solanivora Povolny
Tachypterellus quadrigibbus Say
Toxoptera citricida Kirk.
Unaspis citri Comstock

(b) Bacteria

Citrus variegated chlorosis
Erwinia stewartii (Smith) Dye
Xanthomonas campestris pv. *oryzae* (Ishiyama) Dye and pv. *oryzicola* (Fang. et al.) Dye

(c) Fungi

Alternaria alternata (Fr.) Keissler (non-EU pathogenic isolates)
Anisogramma anomala (Peck) E. Müller
Apiosporina morbosa (Schwein.) v. Arx
Ceratocystis virescens (Davidson) Moreau
Cercoseptoria pini-densiflorae (Hori and Nambu) Deighton
Cercospora angolensis Carv. and Mendes
Elsinoe spp. Bitanc. and Jenk. Mendes
Fusarium oxysporum f. sp. *albedinis* (Kilian and Maire) Gordon
Guignardia piricola (Nosa) Yamamoto
Puccinia pittieriana Hennings
Stegophora ulmea (Schweinitz: Fries) Sydow & Sydow
Venturia nashicola Tanaka and Yamamoto

(d) Virus and virus-like organisms

Beet curly top virus (non-EU isolates)
Black raspberry latent virus
Blight and blight-like
Cadang-Cadang viroid
Citrus tristeza virus (non-EU isolates)
Leprosis
Little cherry pathogen (non- EU isolates)
Naturally spreading psorosis
Palm lethal yellowing mycoplasm
Satsuma dwarf virus
Tatter leaf virus
Witches' broom (MLO)

Annex IIB

(a) Insect mites and nematodes, at all stages of their development

Anthonomus grandis (Boh.)
Cephalcia lariciphila (Klug)
Dendroctonus micans Kugelan
Gilphinia hercyniae (Hartig)
Gonipterus scutellatus Gyll.
Ips amitinus Eichhof
Ips cembrae Heer
Ips duplicatus Sahlberg
Ips sexdentatus Börner
Ips typographus Heer
Sternochetus mangiferae Fabricius

(b) Bacteria

Curtobacterium flaccumfaciens pv. flaccumfaciens (Hedges) Collins and Jones

(c) Fungi

Glomerella gossypii Edgerton
Gremmeniella abietina (Lag.) Morelet
Hypoxylon mammatum (Wahl.) J. Miller

1.1.2.2. Terms of Reference: Appendix 2

List of harmful organisms for which pest categorisation is requested per group. The list below follows the categorisation included in the annexes of Directive 2000/29/EC.

Annex IAI

(a) Insects, mites and nematodes, at all stages of their development

Group of Cicadellidae (non-EU) known to be vector of Pierce's disease (caused by *Xylella fastidiosa*), such as:

1) *Carneocephala fulgida* Nottingham
2) *Draeculacephala minerva* Ball
3) *Graphocephala atropunctata* (Signoret)

Group of Tephritidae (non-EU) such as:

1) *Anastrepha fraterculus* (Wiedemann)
2) *Anastrepha ludens* (Loew)
3) *Anastrepha obliqua* Macquart
4) *Anastrepha suspensa* (Loew)
5) *Dacus ciliatus* Loew
6) *Dacus curcurbitae* Coquillet
7) *Dacus dorsalis* Hendel
8) *Dacus tryoni* (Froggatt)
9) *Dacus tsuneonis* Miyake
10) *Dacus zonatus* Saund.
11) *Epochra canadensis* (Loew)
12) *Pardalaspis cyanescens* Bezzi
13) *Pardalaspis quinaria* Bezzi
14) *Pterandrus rosa* (Karsch)
15) *Rhacochlaena japonica* Ito
16) *Rhagoletis completa* Cresson
17) *Rhagoletis fausta* (Osten-Sacken)
18) *Rhagoletis indifferens* Curran
19) *Rhagoletis mendax* Curran
20) *Rhagoletis pomonella* Walsh
21) *Rhagoletis suavis* (Loew)

(c) Viruses and virus-like organisms

Group of potato viruses and virus-like organisms such as:

1) Andean potato latent virus
2) Andean potato mottle virus
3) Arracacha virus B, oca strain
4) Potato black ringspot virus
5) Potato virus T
6) non-EU isolates of potato viruses A, M, S, V, X and Y (including Yo, Yn and Yc) and Potato leafroll virus

Group of viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L., such as:

1) Blueberry leaf mottle virus
2) Cherry rasp leaf virus (American)
3) Peach mosaic virus (American)
4) Peach phony rickettsia
5) Peach rosette mosaic virus
6) Peach rosette mycoplasm
7) Peach X-disease mycoplasm
8) Peach yellows mycoplasm
9) Plum line pattern virus (American)
10) Raspberry leaf curl virus (American)
11) Strawberry witches' broom mycoplasma
12) Non-EU viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.

Annex IIAI

(a) Insects, mites and nematodes, at all stages of their development

Group of *Margarodes* (non-EU species) such as:

1) *Margarodes vitis* (Phillipi)
2) *Margarodes vredendalensis* de Klerk
3) *Margarodes prieskaensis* Jakubski

1.1.2.3. Terms of Reference: Appendix 3

List of harmful organisms for which pest categorisation is requested. The list below follows the annexes of Directive 2000/29/EC.

Annex IAI

(a) Insects, mites and nematodes, at all stages of their development

Acleris spp. (non-EU)
Amauromyza maculosa (Malloch)
Anomala orientalis Waterhouse
Arrhenodes minutus Drury
Choristoneura spp. (non-EU)
Conotrachelus nenuphar (Herbst)
Dendrolimus sibiricus Tschetverikov
Diabrotica barberi Smith and Lawrence
Diabrotica undecimpunctata howardi Barber
Diabrotica undecimpunctata undecimpunctata Mannerheim
Diabrotica virgifera zeae Krysan & Smith
Diaphorina citri Kuway
Heliothis zea (Boddie)
Hirschmanniella spp., other than *Hirschmanniella gracilis* (de Man) Luc and Goodey
Liriomyza sativae Blanchard
Longidorus diadecturus Eveleigh and Allen
Monochamus spp. (non-EU)
Myndus crudus Van Duzee
Nacobbus aberrans (Thorne) Thorne and Allen
Naupactus leucoloma Boheman
Premnotrypes spp. (non-EU)
Pseudopityophthorus minutissimus (Zimmermann)
Pseudopityophthorus pruinosus (Eichhoff)
Scaphoideus luteolus (Van Duzee)
Spodoptera eridania (Cramer)
Spodoptera frugiperda (Smith)
Spodoptera litura (Fabricus)
Thrips palmi Karny
Xiphinema americanum Cobb *sensu* lato (non-EU populations)
Xiphinema californicum Lamberti and Bleve-Zacheo

(b) Fungi

Ceratocystis fagacearum (Bretz) Hunt
Chrysomyxa arctostaphyli Dietel
Cronartium spp. (non-EU)
Endocronartium spp. (non-EU)
Guignardia laricina (Saw.) Yamamoto and Ito
Gymnosporangium spp. (non-EU)
Inonotus weirii (Murril) Kotlaba and Pouzar
Melampsora farlowii (Arthur) Davis
Mycosphaerella larici-leptolepis Ito et al.
Mycosphaerella populorum G. E. Thompson
Phoma andina Turkensteen
Phyllosticta solitaria Ell. and Ev.
Septoria lycopersici Speg. var. *malagutii* Ciccarone and Boerema
Thecaphora solani Barrus
Trechispora brinkmannii (Bresad.) Rogers

(c) Viruses and virus-like organisms

Tobacco ringspot virus
Tomato ringspot virus
Bean golden mosaic virus
Cowpea mild mottle virus
Lettuce infectious yellows virus
Pepper mild tigré virus
Squash leaf curl virus
Euphorbia mosaic virus
Florida tomato virus

(d) Parasitic plants

Arceuthobium spp. (non-EU)

Annex IAII

(a) Insects, mites and nematodes, at all stages of their development

Meloidogyne fallax Karssen
Popillia japonica Newman
Rhizoecus hibisci Kawai and Takagi

(b) Bacteria

Clavibacter michiganensis (Smith) Davis et al. ssp. *sepedonicus* (Spieckermann and Kotthoff) Davis et al.
Ralstonia solanacearum (Smith) Yabuuchi et al.

(c) Fungi

Melampsora medusae Thümen

Synchytrium endobioticum (Schilbersky) Percival

Annex I B

(a) Insects, mites and nematodes, at all stages of their development

Leptinotarsa decemlineata Say

Liriomyza bryoniae (Kaltenbach)

(b) Viruses and virus-like organisms

Beet necrotic yellow vein virus

1.2. Interpretation of the Terms of Reference

Non-European Union (EU) viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L. are pests listed in the Appendices to the Terms of Reference (ToR) to be subject to pest categorisation to determine whether they fulfil the criteria of quarantine pests or those of regulated non-quarantine pests (RNQPs) for the area of the EU excluding Ceuta, Melilla and the outermost regions of Member States (MSs) referred to in Article 355(1) of the Treaty on the Functioning of the European Union (TFEU), other than Madeira and the Azores.

EFSA Panel on Plant Health (PLH) decided to address the pest categorisation of this large group of infectious agents in several steps, the first of which has been to list non-EU viruses and viroids (viruses and viroids, although different biological categories, are summarised together as 'viruses' in the rest of this opinion) of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L. (EFSA PLH Panel, 2019a).

The process has been detailed in a recent Scientific Opinion (EFSA PLH Panel, 2019a), in which it has been also clarified that *In the process, three groups of viruses were distinguished: non-EU viruses, viruses with significant presence in the EU (known to occur in several MSs, frequently reported in the EU, widespread in several MSs) or so far reported only from the EU, and viruses with undetermined standing for which available information did not readily allow to allocate to one or the other of the two above groups. A non-EU virus is defined by its geographical origin outside of the EU territory. As such, viruses not reported from the EU and occurring only outside of the EU territory are considered as non-EU viruses. Likewise, viruses occurring outside the EU and having only a limited presence in the EU (reported in only one or few MSs, with restricted distribution, outbreaks) are also considered as non-EU. This opinion provides the methodology and results for this classification which precedes but does not prejudice the actual pest categorisation linked with the present mandate. This means that the Panel will then perform pest categorisations for the non-EU viruses and for those with undetermined standing. The viruses with significant presence in the EU or so far reported only from the EU will also be listed, but they will be excluded from the current categorisation efforts. The Commission at any time may present a request to EFSA to categorise some or all the viruses excluded from the current EFSA categorisation.* The same statements and definitions reported above also apply to the current opinion.

Due to the high number of viruses to be categorised and their heterogeneity in terms of biology, host range and epidemiology, the EFSA PLH Panel established the need of finalizing the pest categorisation in separate opinions by grouping non-EU viruses and viruses with undetermined standing according to the host crops. This strategy has the advantage of reducing the number of infectious agents to be considered in each opinion and appears more convenient for the stakeholders that will find grouped in a single opinion the categorisation of the non-EU viruses and those with undetermined standing infecting one or few specific crops. According to this decision, the current opinion covers the pest categorisation of the viruses of *Vitis* that have been listed as non-EU viruses or as viruses with undetermined standing in the previous EFSA scientific opinion (EFSA PLH Panel, 2019a). Whenever information for a particular virus was too scarce, and thus, the level of uncertainty on its identity or its association with *Vitis* too high for an unequivocal assessment, the Panel decided not to pursue the pest categorisation of that virus.

The viruses considered for further categorisation in the current opinion are listed in Table 1.

Table 1: Non-EU viruses of *Vitis* and viruses of *Vitis* with undetermined standing

Non-EU	Australian grapevine viroid (AGVd), blackberry virus S (BlVS), blueberry leaf mottle virus (BLMoV), grapevine Ajinashika virus (GAV), grapevine Anatolian ringspot virus (GARSV), grapevine berry inner necrosis virus (GINV), grapevine cryptic virus 1 (GCV-1), grapevine deformation virus (GDeV), grapevine endophyte endornavirus (GEEV), grapevine fabavirus (GFabV), grapevine geminivirus A (GGVA), grapevine leafroll-associated virus 13 (GLRaV-13), grapevine red blotch virus (GRBV), grapevine stunt virus (GSV), grapevine Tunisian ringspot virus (GTRV), grapevine vein-clearing virus (GVCV), grapevine virus I (GVI), grapevine virus J (GVJ), grapevine virus S (GVS), grapevine yellow speckle viroid 2 (GYSVd-2), grapevine virus 101-14.N.23.9.1/South Africa/2009 (GV-101-14), peach rosette mosaic virus (PRMV), summer grape enamovirus (SGEV), summer grape latent virus (SGLV), temperate fruit decay-associated virus (TFDaV), tobacco ringspot virus (TRSV), tomato ringspot virus (ToRSV), wild vitis virus 1 (WVV-1)
Undetermined standing	Grapevine leafroll-associated virus 7 (GLRaV-7), grapevine satellite virus (GV-Sat), grapevine virus E (GVE)

Some of the grapevine viruses addressed here (TRSV, ToRSV, TFDaV) are also able to infect *Malus* Mill., *Pyrus* L. and/or *Cydonia* Mill. and have therefore also been addressed in the opinion on non-EU viruses and viruses of undetermined standing of *Cydonia*, *Malus* and *Pyrus* (EFSA PLH Panel, 2019b). Non-EU viruses and viruses of undetermined standing infecting *Fragaria* L., *Prunus* L., *Ribes* L., *Rubus* L. will similarly also be addressed in other opinions.

Virus-like diseases of unknown aetiology or diseases caused by phytoplasmas and other graft-transmissible bacteria are not addressed in this opinion.

2. Data and methodologies

2.1. Data

2.1.1. Literature search

Literature search on viruses of *Vitis* was conducted at the beginning of the categorisation in the ISI Web of Science bibliographic database, using the scientific name of the pest as search term. Relevant papers were reviewed and further references and information were obtained from experts, as well as from citations within the references and grey literature. When the collected information was considered sufficient to perform the virus categorisation, the literature search was not further extended; as a consequence, the data provided here for each virus are not necessarily exhaustive.

2.1.2. Database search

Pest information, on the host(s) and distribution, was retrieved from the European and Mediterranean Plant Protection Organization (EPPO) Global Database (EPPO, 2019) and relevant publications. When the information from these sources was limited, it has been integrated with data from CABI crop protection compendium (CABI, 2019; https://www.cabi.org/cpc/). The database Fauna Europaea (de Jong et al., 2014; https://fauna-eu.org) has been used to search for additional information on the distribution of vectors, especially when data were not available in EPPO and/or CABI.

Data about the import of commodity types that could potentially provide a pathway for a pest to enter the EU and about the area of hosts grown in the EU were obtained from EUROSTAT (Statistical Office of the European Communities).

The Europhyt database was consulted for pest-specific notifications on interceptions and outbreaks. Europhyt is a web-based network run by the Directorate General for Health and Food Safety (DG SANTÉ) of the European Commission, and is a subproject of PHYSAN (Phyto-Sanitary Controls) specifically concerned with plant health information. The Europhyt database manages notifications of interceptions of plants or plant products that do not comply with EU legislation, as well as notifications of plant pests detected in the territory of the MSs and the phytosanitary measures taken to eradicate or avoid their spread.

Information on the taxonomy of viruses and viroids was gathered from the Virus Taxonomy: 2018 Release (https://talk.ictvonline.org/taxonomy/), an updated official classification by the International Committee on Taxonomy of Viruses (ICTV). Information on the taxonomy of viruses not yet included in that ICTV classification was gathered from the primary literature source describing them. According to

ICTV rules (https://talk.ictvonline.org/information/w/faq/386/how-to-write-a-virus-name), names of viruses are not italicised in the present opinion.

2.2. Methodologies

The Panel performed the pest categorisation for viruses of *Vitis*, following guiding principles and steps presented in the EFSA guidance on quantitative pest risk assessment (EFSA PLH Panel, 2018b) and as defined in the International Standard for Phytosanitary Measures No 11 (FAO, 2013) and No 21 (FAO, 2004).

This work was initiated following an evaluation of the EU plant health regime. Therefore, to facilitate the decision-making process, in the conclusions of the pest categorisation, the Panel addresses explicitly each criterion for a Union quarantine pest and for a Union RNQP in accordance with Regulation (EU) 2016/2031 on protective measures against pests of plants, and includes additional information required in accordance with the specific ToR received by the European Commission. In addition, for each conclusion, the Panel provides a short description of its associated uncertainty.

Table 2 presents the Regulation (EU) 2016/2031 pest categorisation criteria on which the Panel bases its conclusions. All relevant criteria have to be met for the pest to potentially qualify either as a quarantine pest or as a RNQP. If one of the criteria is not met, the pest will not qualify. A pest that does not qualify as a quarantine pest may still qualify as a RNQP that needs to be addressed in the opinion. For the pests regulated in the protected zones only, the scope of the categorisation is the territory of the protected zone; thus, the criteria refer to the protected zone instead of the EU territory.

It should be noted that the Panel's conclusions are formulated respecting its remit and particularly with regard to the principle of separation between risk assessment and risk management (EFSA founding regulation (EU) No 178/2002); therefore, instead of determining whether the pest is likely to have an unacceptable impact, the Panel will present a summary of the observed pest impacts. Economic impacts are expressed in terms of yield and quality losses and not in monetary terms, whereas addressing social impacts is outside the remit of the Panel.

Table 2: Pest categorisation criteria under evaluation, as defined in Regulation (EU) 2016/2031 on protective measures against pests of plants (the number of the relevant sections of the pest categorisation is shown in brackets in the first column)

Criterion of pest categorisation	Criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Criterion in Regulation (EU) 2016/2031 regarding protected zone quarantine pest (articles 32–35)	Criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest
Identity of the pest (Section 3.1)	Is the identity of the pest established, or has it been shown to produce consistent symptoms and to be transmissible?	Is the identity of the pest established, or has it been shown to produce consistent symptoms and to be transmissible?	Is the identity of the pest established, or has it been shown to produce consistent symptoms and to be transmissible?
Absence/ presence of the pest in the EU territory (Section 3.2)	Is the pest present in the EU territory? If present, is the pest widely distributed within the EU? Describe the pest distribution briefly!	Is the pest present in the EU territory? If not, it cannot be a protected zone quarantine organism	Is the pest present in the EU territory? If not, it cannot be a regulated non-quarantine pest. (A regulated non-quarantine pest must be present in the risk assessment area)
Regulatory status (Section 3.3)	If the pest is present in the EU but not widely distributed in the risk assessment area, it should be under official control or expected to be under official control in the near future	The protected zone system aligns with the pest-free area system under the International Plant Protection Convention (IPPC). The pest satisfies the IPPC definition of a quarantine pest that is not present in the risk assessment area (e.g. protected zone)	Is the pest regulated as a quarantine pest? If currently regulated as a quarantine pest, are there grounds to consider its status could be revoked?

Criterion of pest categorisation	Criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Criterion in Regulation (EU) 2016/2031 regarding protected zone quarantine pest (articles 32–35)	Criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	Is the pest able to enter into, become established in, and spread within, the EU territory? If yes, briefly list the pathways!	Is the pest able to enter into, become established in, and spread within, the protected zone areas? Is entry by natural spread from EU areas where the pest is present possible?	Is spread mainly via specific plants for planting, rather than via natural spread or via movement of plant products or other objects? Clearly state if plants for planting is the main pathway!
Potential for consequences in the EU territory (Section 3.5)	Would the pests' introduction have an economic or environmental impact on the EU territory?	Would the pests' introduction have an economic or environmental impact on the protected zone areas?	Does the presence of the pest on plants for planting have an economic impact, as regards the intended use of those plants for planting?
Available measures (Section 3.6)	Are there measures available to prevent the entry into, establishment within or spread of the pest within the EU such that the risk becomes mitigated?	Are there measures available to prevent the entry into, establishment within or spread of the pest within the protected zone areas such that the risk becomes mitigated? Is it possible to eradicate the pest in a restricted area within 24 months (or a period longer than 24 months where the biology of the organism so justifies) after the presence of the pest was confirmed in the protected zone?	Are there measures available to prevent pest presence on plants for planting such that the risk becomes mitigated?
Conclusion of pest categorisation (Section 4)	A statement as to whether (1) all criteria assessed by EFSA above for consideration as a potential quarantine pest were met and (2) if not, which one(s) were not met	A statement as to whether (1) all criteria assessed by EFSA above for consideration as potential protected zone quarantine pest were met, and (2) if not, which one(s) were not met	A statement as to whether (1) all criteria assessed by EFSA above for consideration as a potential regulated non-quarantine pest were met, and (2) if not, which one(s) were not met

The Panel will not indicate in its conclusions of the pest categorisation whether to continue the risk assessment process, but following the agreed two-step approach, will continue only if requested by the risk managers. However, during the categorisation process, experts may identify key elements and knowledge gaps that could contribute significant uncertainty to a future assessment of risk. It would be useful to identify and highlight such gaps so that potential future requests can specifically target the major elements of uncertainty, perhaps suggesting specific scenarios to examine.

3. Pest categorisation

3.1. Identity and biology of the pests

3.1.1. Identity and taxonomy

Is the identity of the pests established, or have they been shown to produce consistent symptoms and to be transmissible? (Yes or No)

Yes, excluding GV-101-14. The viruses of *Vitis* categorised in the present opinion, with the exception of grapevine Ajinashika virus (GAV) and grapevine stunt virus (GSV), are either classified as species in the official ICTV classification scheme, or if not yet officially classified, have been proposed as tentative new species based on their molecular and/or biological features. The identities of GAV and GSV have not been completely established but the agents are transmissible and produce consistent symptoms.

No, for GV-101-14.

In Table 3, the information on the identity of the viruses categorised in the present opinion is reported. Eighteen viruses (AGVd, GYSVd-2, BlVS, BLMoV, GARSV, GINV, GDeV, GEEV, GFabV, GLRaV-7, GLRaV-13, GRBV, GTRV, GVCV, GVE, PRMV, TRSV, ToRSV) are included in the ICTV official classification scheme. No uncertainty is associated with their identity. Seven viruses (GCV-1, GGVA, GVI, GVJ, SGEV, SGLV, WVV-1) have not been yet officially classified, mainly because they have been only recently discovered. However, molecular features of these viruses allowed proposing their tentative classification as distinct species in established genera thus recognising them as infectious entities different from previously reported ones. Temperate fruit decay-associated virus (TFDaV) has been identified as a novel tentative species, but whether TFDaV may belong to new genus and/or a new family has not been established yet. Overall, there is no uncertainty associated with the identity of viruses classified as tentative species, although a limited uncertainty remains on their final taxonomic assignment.

For GAV and GSV, there is no sequence information available and their taxonomy cannot be evaluated on the basis of the limited available information on their characteristics. They appear to be RNA viruses with isometric particles, but such agents can be found in several different virus families. On the other hand, results from biological assays for these two agents demonstrate their transmissibility and their consistent association with symptoms (Namba et al., 1986; Martelli, 2014).

Concerning GV-101-14, no information is available outside of a very short (199 nt) sequence available as a GenBank entry. This sequence suggests the virus may belong to the family *Betaflexiviridae*. In the absence of any additional information on how this sequence was obtained, the association with any symptoms in grapevine, and even its association with grapevine, is questionable. A loose of potential taxonomic assignation does not provide pointers to the virus biology and hence, given the very limited knowledge on this potential agent, the Panel decided not to pursue its categorisation.

For two viruses (GCV-1 and GEEV) (Espach et al., 2012; Sabanadzovic and Abou, 2012), it is uncertain if they infect plants. Indeed, GEEV and GCV-1 are members and tentative species in the families *Endornaviridae* and *Partitiviridae,* respectively, both of which include viruses infecting plants or fungi, and conclusive data confirming that their host is grapevine (and not plant-associated fungi) have not been provided yet.

Table 3: Identity of viruses and viroids categorised in the present opinion

VIRUS/VIROID name[a]	Is the identity of the pest established, or has it been shown to produce consistent symptoms and to be transmissible?	Justification[b]
Australian grapevine viroid (AGVd)	Yes	Approved species in the genus *Apscaviroid*, family *Pospiviroidae*
Grapevine yellow speckle viroid 2 (GYSVd-2)	Yes	Approved species in the genus *Apscaviroid*, family *Pospiviroidae*
Blackberry virus S (BlVS)	Yes	Approved species in the genus *Marafivirus,* family *Tymoviridae*
Blueberry leaf mottle virus (BLMoV)	Yes	Approved species in the genus *Nepovirus,* family *Secoviridae*
Grapevine Ajinashika virus (GAV)	Yes	Taxonomy of this poorly characterised, unclassified RNA virus with isometric particles, not associated with any available genomic sequence, is unclear (Martelli, 2014). A synonym of GAV is grapevine Ajinashika-associated virus (Namba et al., 1991), highlighting the link of this virus with the Ajinashika disease
Grapevine Anatolian ringspot virus (GARSV)	Yes	Approved species in the genus *Nepovirus,* family *Secoviridae*
Grapevine berry inner necrosis virus (GINV)	Yes	Approved species in the genus *Trichovirus,* family *Betaflexiviridae*
Grapevine cryptic virus 1 (GCV-1)	Yes	Tentative species in the genus *Alphapartitivirus*, family *Partitiviridae* (Sabanadzovic, 2009; Sabanadzovic and Abou, 2012). A synonym of GCV-1 is grapevine partitivirus 1 (Martelli, 2017)
Grapevine deformation virus (GDeV)	Yes	Approved species in the genus *Nepovirus,* family *Secoviridae*
Grapevine endophyte endornavirus (GEEV)[c]	Yes	Approved species in the genus *Alphaendornavirus,* family *Endornaviridae*
Grapevine fabavirus (GFabV)	Yes	Approved species in the genus *Fabavirus,* family *Secoviridae*
Grapevine geminivirus A (GGVA)	Yes	Tentative species in the family *Geminiviridae* (Al Rwahnih et al., 2017a)
Grapevine leafroll-associated virus 7 (GLRaV-7)	Yes	Approved species in the genus *Velarivirus,* family *Closteroviridae*
Grapevine leafroll-associated virus 13 (GLRaV-13)	Yes	Approved species in the genus *Ampelovirus,* family *Closteroviridae*
Grapevine red blotch virus (GRBV)	Yes	Approved species in the genus *Grablovirus,* family *Geminiviridae.* Synonyms of GRBV are grapevine Cabernet Franc-associated virus and grapevine red leaf-associated virus (Krenz et al., 2012; Poojari et al., 2013)
Grapevine satellite virus (GV-Sat)	Yes	Tentative satellite virus species (Al Rwahnih et al., 2013; Candresse et al., 2017). Satellite viruses are not autonomous but rely on a helper virus for a range of biological functions. The helper virus of GV-Sat is currently not known

VIRUS/VIROID name[(a)]	Is the identity of the pest established, or has it been shown to produce consistent symptoms and to be transmissible?	Justification[(b)]
Grapevine stunt virus (GSV)	Yes	Taxonomy of this poorly characterised and unclassified RNA virus is unclear, but it is associated with a graft- and leafhopper-transmissible disease (grapevine stunt) (Namba et al., 1981; Martelli, 2014)
Grapevine Tunisian ringspot virus (GTRV)	Yes	Approved species in the genus *Nepovirus,* family *Secoviridae*
Grapevine vein-clearing virus (GVCV)	Yes	Approved species in the genus *Badnavirus,* family *Caulimoviridae*
Grapevine virus E (GVE)	Yes	Approved species in the genus *Vitivirus,* family *Betaflexiviridae*
Grapevine virus I (GVI)	Yes	Tentative species in the genus *Vitivirus,* family *Betaflexiviridae* (Blouin et al., 2018)
Grapevine virus J (GVJ)	Yes	Tentative species in the genus *Vitivirus,* family *Betaflexiviridae* (Diaz-Lara et al., 2018)
Grapevine virus S (GVS)	Yes	Partial genomic sequences reported in GenBank (JX513898 and JX513899). It appears to be a novel tentative species in the genus *Ilarvirus*, family *Bromoviridae*
Grapevine virus 101-14.N.23.9.1/South Africa/2009 (GV-101-14)	No	Only a very short sequence (199 nt) reported in GenBank (FJ884336). No information on the way the sequence was obtained and its reproducibility. In the absence of any additional information, the identity as a virus is questionable and the Panel decided not to pursue the categorisation of this agent
Peach rosette mosaic virus (PRMV)	Yes	Approved species in the genus *Nepovirus,* family *Secoviridae*
Summer grape enamovirus (SGEV)	Yes	Tentative species in the genus *Enamovirus,* family *Luteoviridae* (Sabanadzovic, 2009) SGEV is a synonym of grapevine enamovirus 1 recently identified by high-throughput sequencing (Fagundes Silva et al., 2017)
Summer grape latent virus (SGLV)	Yes	Tentative species in the genus *Oryzavirus,* family *Reoviridae* (Sabanadzovic and Abou, 2012). Based on sequence comparison, grapevine Cabernet Sauvignon reovirus (Al Rwahnih et al., 2015a; Martelli et al., 2017) is a synonym of SGLV
Temperate fruit decay-associated virus (TFDaV)	Yes	Tentative species in a tentative new genus or family of ssDNA viruses (Basso et al., 2015)
Tobacco ringspot virus (TRSV)	Yes	Approved species in the genus *Nepovirus*, family *Secoviridae*
Tomato ringspot virus (ToRSV)	Yes	Approved species in the genus *Nepovirus*, family *Secoviridae*
Wild vitis virus 1 (WVV-1)	Yes	Tentative species in the genus *Grablovirus,* family *Geminiviridae* (Perry et al., 2018)

(a): According to ICTV rules (https://talk.ictvonline.org/information/w/faq/386/how-to-write-a-virus-name), names of viruses are not italicised.
(b): Tentative species refers to a proposed novel virus/viroid species not yet approved by ICTV.
(c): The officially approved ICTV name is now grapevine endophyte alphaendornavirus.

3.1.2. Biology of the pests

All the viruses considered in the present pest categorisation are efficiently transmitted by vegetative propagation techniques. Some of them may possibly be mechanically transmitted by contaminated tools and/or injuries, but this process is generally considered to be at best inefficient in woody hosts, such as *Vitis* species. Some of these agents have additional natural transmission mechanisms as outlined in Table 4.

Table 4: Seed-, pollen- and vector-mediated transmission of the categorised viruses with the associated uncertainty

VIRUS/ VIROID name	Seed transmission	Seed transmission uncertainty (refs)	Pollen transmission	Pollen transmission uncertainty (refs)	Vector transmission	Vector transmission uncertainty (refs)
Australian grapevine viroid (AGVd)	No	Not known for AGVd and most apscaviroids are not known to be seed-transmitted (Hammond, 2017)	No	Not known for AGVd and apscaviroids are not known to be pollen-transmitted (Hadidi et al., 2017)	No	Not known for AGVd. Apscaviroids are not known to be vector-transmitted, with the possible exception of ASSVd. For this viroid, transmission between experimental herbaceous hosts mediated by *Trialeurodes vaporariorum* has been shown (Walia et al., 2015). However, vector-mediated natural transmission of ASSVd to woody hosts has never been documented and would appear unlikely
Grapevine yellow speckle viroid 2 (GYSVd-2)	Cannot be excluded	Not known for GYSVd-2, but the related grapevine yellow speckle viroid 1 has been reported to be seed-transmissible (Wan Chow Wah and Symons, 1999)	No	Not known for GYSVd-2 and apscaviroids are not reported to be pollen-transmitted (Hammond, 2017)	No	Not known for GYSVd-2. Apscaviroids are not known to be vector-transmitted, with the possible exception of ASSVd, which is associated with uncertainties (see above)
Blackberry virus S (BlVS)	No	Not known for BlVS and no marafivirus has been reported to be seed-transmitted (Dreher et al., 2012)	No	Not known for BlVS and no marafivirus has been reported to be pollen-transmitted (Brunt et al., 1996)	Cannot be excluded	Not known for BlVS, but some marafiviruses are transmitted by leafhoppers in a persistent-propagative manner (Dreher et al., 2012)

VIRUS/ VIROID name	Seed transmission	Seed transmission uncertainty (refs)	Pollen transmission	Pollen transmission uncertainty (refs)	Vector transmission	Vector transmission uncertainty (refs)
Blueberry leaf mottle virus (BLMoV)	Yes	No uncertainty. Seed-transmitted in *V. labrusca* (Uyemoto et al., 1977)	Yes	No uncertainty. Pollen transmission in blueberry bush is facilitated by bees (Childress and Ramsdell, 1985). Because of grapevine floral biology, this mechanism has likely no or only minor significance in this host	Cannot be excluded	Not known for BLMoV. Experimental transmission by nematodes has proven unsuccessful (Childress and Ramsdell, 1985) but many nepoviruses are known to be transmitted by nematodes (Rowhani et al., 2017)
Grapevine Ajinashika virus (GAV)	Transmission mechanisms cannot be readily evaluated. No information is available on transmission of GAV and no close relative is known which could be used to propose a tentatively evaluation on the basis of similarity					
Grapevine Anatolian ringspot virus (GARSV)	Cannot be excluded	Not known for GARSV but other nepoviruses are known to be seed-transmitted in some hosts (Digiaro et al., 2017)	Cannot be excluded	Not known for GARSV but other nepoviruses are known to be pollen-transmitted in some hosts (Digiaro et al., 2017)	Cannot be excluded	Not known for GARSV (Andret-Link et al., 2017) but other nepoviruses are known to be transmitted by nematodes (Digiaro et al., 2017)
Grapevine berry inner necrosis virus (GINV)	No	Not known for GINV and trichoviruses are generally not known to be seed-transmitted	No	Not known for GINV and trichoviruses are not reported to be pollen-transmitted	Yes	No uncertainty. GINV is transmitted in vineyards by an eriophyid mite (*Colomerus vitis*) (Kunugi et al., 2000)
Grapevine cryptic virus 1 (GCV-1)	Cannot be excluded	Not known for GCV-1 (Martelli, 2014) but other members of the family *Partitiviridae* are seed-transmitted (Ghabrial et al., 2012; Vainio et al., 2018)	Cannot be excluded	Not known for GCV-1 (Martelli, 2014) but other members of the family *Partitiviridae* are pollen-transmitted (Ghabrial et al., 2012; Vainio et al., 2018)	No	Not known for GCV-1 and alpha partitiviruses are not known to be vector-transmitted (Ghabrial et al., 2012; Vainio et al., 2018)
Grapevine deformation virus (GDeV)	Cannot be excluded	Not known for GDeV but other nepoviruses are known to be seed-transmitted in some hosts (Digiaro et al., 2017)	Cannot be excluded	Not known for GDeV but other nepoviruses are known to be pollen-transmitted in some hosts (Digiaro et al., 2017)	Cannot be excluded	Not known for GDeV but other nepoviruses are known to be transmitted by nematodes (Martelli, 2014; Digiaro et al., 2017)
Grapevine endophyte endornavirus (GEEV)	Cannot be excluded	Not known for GEEV but other plant alphaendornaviruses are seed-transmitted (Roossinck et al., 2011)	Cannot be excluded	Not known for GEEV but other plant alphaendornaviruses are pollen-transmitted (Roossinck et al., 2011)	No	Not known for GEEV and alpha endornaviruses are not known to be vector-transmitted (Fukuhara and Gibbs, 2012)

VIRUS/ VIROID name	Seed transmission	Seed transmission uncertainty (refs)	Pollen transmission	Pollen transmission uncertainty (refs)	Vector transmission	Vector transmission uncertainty (refs)
Grapevine fabavirus (GFabV)	No	Not known for GFabV and fabaviruses are generally not known to be seed-transmitted (Lisa and Boccardo, 1996)	No	Not known for GFabV and fabaviruses are generally not known to be pollen-transmitted (Lisa and Boccardo, 1996)	Cannot be excluded	Not known for GFabV but fabaviruses are commonly transmitted by aphids (Lisa and Boccardo, 1996; Sanfaçon et al., 2012)
Grapevine geminivirus A (GGVA)	No	Not known for GGVA and members of family *Geminiviridae* are generally not reported to be seed-transmitted (Rojas et al., 2018)	No	Not known for GGVA and members of family *Geminiviridae* are generally not reported to be pollen-transmitted	Cannot be excluded	Not known for GGVA, but members of family *Geminiviridae* are generally transmitted by insects (Rojas et al., 2018)
Grapevine leafroll-associated virus 7 (GLRaV-7)	No	Not known for GLRaV-7 and velariviruses are generally not reported to be seed-transmitted (Martelli, 2014; Al Rwahnih et al., 2017b)	No	Not known for GLRaV-7 and velariviruses are generally not reported to be pollen-transmitted	No	Not known for GLRaV-7 and no vectors are known to transmit velariviruses
Grapevine leafroll-associated virus 13 (GLRaV-13)	No	Not known for GLRaV-13 and ampeloviruses are generally not reported to be seed-transmitted (Martelli, 2014)	No	Not known for GLRaV-13 and ampeloviruses are generally not reported to be pollen-transmitted	Cannot be excluded	Not known for GLRaV-13 but several ampeloviruses are transmitted by mealybugs and/or soft scale insects (Herrbach et al., 2017)
Grapevine red blotch virus (GRBV)	No	Not known for GRBV and member of family *Geminiviridae* are generally not reported to be seed-transmitted (Rojas et al., 2018)	No	Not known for GRBV and member of family *Geminiviridae* are generally not reported to be pollen-transmitted	Yes	No uncertainty. Evidence of experimental transmission by the treehopper *Spissistilus festinus* (Bahder et al., 2016a). Transmission by the leafhopper *Erythroneura ziczac* had been reported (Poojari et al., 2013), but not confirmed later (Bahder et al., 2016a,b). Therefore, GRBV transmission by *E. ziczac* appears unlikely

VIRUS/ VIROID name	Seed transmission	Seed transmission uncertainty (refs)	Pollen transmission	Pollen transmission uncertainty (refs)	Vector transmission	Vector transmission uncertainty (refs)
Grapevine satellite virus (GV-Sat)	Transmission mechanisms cannot be readily evaluated since no information is available on the identity of a helper virus to assist GV-Sat transmission					
Grapevine stunt virus (GSV)	No	Lack of seed transmission is reported by Brunt et al. (1996). However, the Panel was unable to identify a specific publication associated with this statement	Unable to conclude given lack of information		Yes	Only a single report about transmission of GVS by a leafhopper (*Arboridia apicalis*) (Namba et al., 1986), not supported by molecular data
Grapevine Tunisian ringspot virus (GTRV)	Cannot be excluded	Not known for GTRV but other nepoviruses are known to be seed-transmitted in some hosts (Digiaro et al., 2017)	Cannot be excluded	Not known for GTRV but other nepoviruses are known to be pollen-transmitted in some hosts (Digiaro et al., 2017)	Cannot be excluded	Not known for GTRV but other nepoviruses are known to be transmitted by nematodes (Digiaro et al., 2017)
Grapevine vein-clearing virus (GVCV)	Cannot be excluded	Not known for GVCV but other members of genus *Badnavirus* are known to be seed-transmitted (Bhat et al., 2016)	No	Not known for GVCV and members of genus *Badnavirus* are generally not reported to be pollen-transmitted	Cannot be excluded	Not known for GVCV but badnaviruses are transmitted by mealybugs and/or aphids (Qiu and Schoelz, 2017)
Grapevine virus E (GVE)	No	Not known for GVE and members of genus *Vitivirus* are not reported to be seed-transmitted	No	Not known for GVE and members of family *Vitivirus* are not reported to be pollen-transmitted	Yes	No uncertainty. Transmitted by a mealybug (*Pseudococcus comstocki*) (Nakaune et al., 2008)
Grapevine virus I (GVI)	No	Not known for GVI and members of genus *Vitivirus* are not reported to be seed-transmitted	No	Not known for GVI and members of family *Vitivirus* are not reported to be pollen-transmitted	Cannot be excluded	Not known for GVI, but vitiviruses are generally transmitted by pseudococcid mealybugs, soft scales insects or aphids (Tzanetakis et al., 2007; Martelli, 2014)
Grapevine virus J (GVJ)	No	Not known for GVJ and members of genus *Vitivirus* are not reported to be seed-transmitted	No	Not known for GVJ and members of family *Vitivirus* are not reported to be pollen-transmitted	Cannot be excluded	Not known for GVJ, but vitiviruses are generally transmitted by pseudicoccid mealybugs, soft scales insects or aphids (Tzanetakis et al., 2007; Martelli, 2014)

VIRUS/ VIROID name	Seed transmission	Seed transmission uncertainty (refs)	Pollen transmission	Pollen transmission uncertainty (refs)	Vector transmission	Vector transmission uncertainty (refs)
Grapevine virus S (GVS)	Cannot be excluded	Not known for GVS but some other ilarviruses are known to be seed-transmitted (Pallas et al., 2013)	Cannot be excluded	Not known for GVS but some other ilarviruses are known to be pollen-transmitted. (Pallas et al., 2013)	No	Not known for GVS, no known vector for other ilarviruses, however pollen transmission is known to be facilitated by thrips (Greber et al., 1992; Sdoodee and Teakle, 1993; Klose et al., 1996)
Peach rosette mosaic virus (PRMV)	Yes	No uncertainty. Seed-transmitted in Concord grape (*V. labrusca*; Ramsdell and Myers, 1978; Rowhani et al., 2017)	Cannot be excluded	Not known for PRMV (Ramsdell and Myers, 1978) but other nepoviruses are known to be pollen-transmitted in some hosts (Digiaro et al., 2017)	Yes	No uncertainty. Known to be transmitted by North American nematode species: *X. americanum* sensu lato, *Longidorus diadecturus, L. elongatus* (EFSA PLH Panel, 2013)
Summer grape enamovirus (SGEV)	No	Not known for SGEV and enamoviruses are generally not reported to be seed-transmitted	No	Not known for SGEV and enamoviruses are not reported to be pollen-transmitted	Cannot be excluded	Not known for SGEV, but enamoviruses are generally transmitted by aphids (Gray and Gildow, 2003)
Summer grape latent virus (SGLV)	No	Not known for SGLV and *Reoviridae* are generally not transmitted through seeds (Boccardo and Milne, 1984; Attoui et al., 2012)	No	Not known for SGLV and *Reoviridae* are generally not reported to be pollen-transmitted	Cannot be excluded	Not known for SGLV but plant-infecting *Reoviridae* are known to be transmitted by insects (Hogenhout et al., 2008)
Temperate fruit decay-associated virus (TFDaV)	Transmission mechanisms cannot be readily evaluated. No information is available on the transmission of TFDaV and no close relative exists which could be used to propose a tentatively evaluation on the basis of similarity					
Tobacco ringspot virus (TRSV)	Yes	Reported in herbaceous hosts, but not reported in woody hosts (EFSA PLH Panel, 2013; Rowhani et al., 2017)	Yes	Reported in herbaceous hosts, but not reported in woody hosts (EFSA PLH Panel, 2013)	Yes	No uncertainty. Known to be transmitted by *Xiphinema americanum* sensu lato (including *X. americanum* sensu stricto, *X. californicum, X. rivesi, X. intermedium, X. tarjanense*) (EFSA PLH Panel, 2018a)

VIRUS/ VIROID name	Seed transmission	Seed transmission uncertainty (refs)	Pollen transmission	Pollen transmission uncertainty (refs)	Vector transmission	Vector transmission uncertainty (refs)
Tomato ringspot virus (ToRSV)	Yes	Reported in herbaceous hosts, and occasionally in grape (Sanfaçon and Fuchs, 2011; EFSA PLH Panel, 2013; EPPO, 2019)	Yes	Reported in herbaceous hosts, but not reported in woody hosts (Sanfaçon and Fuchs, 2011; EFSA PLH Panel, 2013)	Yes	No uncertainty. Known to be transmitted by *Xiphinema americanum* sensu lato (including *X. americanum* sensu stricto, *X. bricolense*, *X. californicum*, *X. rivesi*, *X. intermedium*, *X. inaequale*, *X. tarjanense*) (EFSA PLH Panel et al., 2018a)
Wild vitis virus 1 (WVV-1)	No	Not known for WVV-1 and members of the family *Geminiviridae* are generally not reported as seed-transmitted (Rojas et al., 2018)	No	Not known for WVV-1 and members of the family *Geminiviridae* are generally not reported as pollen-transmitted	Cannot be excluded	Not known for WVV-1, but members of family *Geminiviridae* are generally transmitted by insects (Rojas et al., 2018)

3.1.3. Intraspecific diversity

Viruses generally exist as quasi-species, which means that they accumulate in a single host as a cluster of closely related sequence variants slightly differing from each other (Andino and Domingo, 2015). This is likely due to competition among the diverse genomic variants generated as a consequence of the error-prone viral replication system (higher in RNA than in DNA viruses) and the ensuing selection of the most fit variant distributions in a given environment (Domingo et al., 2012). This is also true for viroids (Di Serio et al., 2017b). This means that a certain level of intraspecific diversity is expected for all viruses. This genetic variability may interfere with the efficiency of detection methods, especially when they are based on the amplification of variable genomic viral sequences, thus generating uncertainties on the reliability and/or sensitivity of the detection for all the existing viral variants. As an example, high intraspecific divergence has been observed in the X4 domain of the ToRSV RNA2 among different virus strains (Jafarpour and Sanfaçon, 2009; Rivera et al., 2016). It has been also shown that sequence diversity observed in GVCV, PRMV and GRBV may impair detection of some isolates by some specific primers. In the case of GVCV, genetically diverse isolates of the badnavirus, whose identities of ORFII range from 83.5 to 99.2%, have been reported so that the use of at least two sets of primers is recommended for conclusive detection of the virus due to the existence of genetically diverse populations (Qiu and Schoelz, 2017). To overcome genetic variability among different PRMV isolates, specific primers have been designed in highly conserved regions of the genomic RNA1 and RNA2 of this virus (Ho et al., 2018). Several isolates of the DNA virus GRBV have been sequenced and two distinct clades have been identified in phylogenetic trees, with 9% nucleotide diversity between the clades (Krenz et al., 2014). In the case of GGVA, a natural defective genomic DNA lacking about 46% of the sequence has been described (Al Rwahnih et al., 2017a).

For several viruses categorised in this opinion, information on their genetic variability is available, but studies showing a correlation between specific virus populations or variants and biological features (e.g. host range, transmissibility, pathogenicity) are few, thus also contributing to increase the uncertainties. In the case of TRSV, several variants from different natural hosts have been reported (Stace-Smith, 1985). For example, the 'grapevine yellow vein' isolate of ToRSV has been found to cause significant diverse symptoms compared with the isolates from non-grape sources (Walker et al., 2015). All these uncertainties are even more pronounced for viruses recently discovered by high-throughput sequencing (HTS), for which data on genomic diversity and biological features are almost completely lacking.

3.1.4. Detection and identification of the pest

Are detection and identification methods available for the pests?

Yes, the viruses of *Vitis* categorised in the present opinion can be detected and identified by molecular, and/or serological and biological methods.

For all the categorised viruses, molecular and/or serological detection and identification methods are available. However, in the absence or near absence of information on the genetic variability of these agents, it is not possible to guarantee the specificity of the available detection methods and whether they can detect the majority of the strains of that particular virus. This is particularly true in the case of detection methods based on polymerase chain reaction (PCR) because one or a few mutations in the binding sites of primers may be sufficient to abolish amplification of a particular variant. For some of the categorised viruses, biological methods based on bioassays are also available. It must be also stressed that diagnosis in woody host plants is sometimes difficult because of the uneven virus distribution, low virus titers or presence of inhibitors in the extracts to be tested. In Table 5, the information on the availability of detection and identification methods for each categorised virus is summarised together with the associated uncertainty.

Table 5: Available detection and identification methods of the categorised viruses with the associated uncertainty

VIRUS/VIROID name	Are detection and identification methods available for the pest?	Justification (key references)	Uncertainties
Australian grapevine viroid (AGVd)	Yes	(Di Serio et al., 2017b)	No uncertainty
Grapevine yellow speckle viroid 2 (GYSVd-2)	Yes	(Jiang et al., 2009; Hajizadeh et al., 2012; Di Serio et al., 2017b)	No uncertainty
Blackberry virus S (BlVS)	Yes	(Sabanadzovic and Ghanem-Sabanadzovic, 2009)	No uncertainty
Blueberry leaf mottle virus (BLMoV)	Yes	(Martin et al., 2012)	No uncertainty
Grapevine Ajinashika virus (GAV)	Yes	(Namba et al., 1991)	Indexing is available but uncertainties exist on the reliability of serological detection. No molecular detection method is available
Grapevine Anatolian ringspot virus (GARSV)	Yes	(Liang et al., 2015)	No uncertainty
Grapevine berry inner necrosis virus (GINV)	Yes	(Fan et al., 2017c)	No uncertainty
Grapevine cryptic virus 1 (GCV-1)	Yes	(Sabanadzovic and Abou, 2012)	Uncertainty (absence of a proven protocol)[(a)]
Grapevine deformation virus (GDeV)	Yes	(Cigsar et al., 2003; Digiaro et al., 2007)	No uncertainty
Grapevine endophyte endornavirus (GEEV)	Yes	(Espach et al., 2012)	Uncertainty (absence of a proven protocol)[(a)]
Grapevine fabavirus (GFaV)	Yes	(Al Rwahnih et al., 2016)	Uncertainty (absence of a proven protocol)[(b)]
Grapevine geminivirus A (GGVA)	Yes	(Al Rwahnih et al., 2017a)	No uncertainty
Grapevine leafroll-associated virus 7 (GLRaV-7)	Yes	(Al Rwahnih et al., 2012)	No uncertainty

VIRUS/VIROID name	Are detection and identification methods available for the pest?	Justification (key references)	Uncertainties
Grapevine leafroll-associated virus 13 (GLRaV-13)	Yes	(Ito and Nakaune, 2016)	Uncertainty (absence of a proven protocol)[(b)]
Grapevine red blotch virus (GRBV)	Yes	(Al Rwahnih et al., 2015b)	No uncertainty
Grapevine satellite virus (GV-Sat)	Yes	(Al Rwahnih et al., 2013; Candresse et al., 2017)	Uncertainty (absence of a proven protocol)[(b)]
Grapevine stunt virus (GSV)	Yes	(Namba et al., 1986)	Biological indexing is available. Uncertainties exist on the reliability of serological detection. No molecular detection is available
Grapevine Tunisian ringspot virus (GTRV)	Yes	(Ouertani et al., 1992; Digiaro et al., 2007)	Biological indexing is available. detection. Uncertainties exist on the reliability of serological detection. No molecular detection is available
Grapevine vein-clearing virus (GVCV)	Yes	(Qiu and Schoelz, 2017)	Uncertainty about reliability of published assays (generated by the high genetic diversity of the virus population)
Grapevine virus E (GVE)	Yes	(Nakaune and Nakano, 2006; Coetzee et al., 2010; Komorowska et al., 2014; Vargas-Asencio et al., 2016)	No uncertainty
Grapevine virus I (GVI)	Yes	(Blouin et al., 2018)	Uncertainty (absence of a proven protocol)[(b)]
Grapevine virus J (GVJ)	Yes	(Diaz-Lara et al., 2018)	Uncertainty (absence of a proven protocol)[(b)]
Grapevine virus S (GVS)	Yes	(GenBank JX513898, JX513899)	Uncertainty (absence of a proven protocol)[(a)]
Peach rosette mosaic virus (PRMV)	Yes	(Ho et al., 2018)	No uncertainty
Summer grape enamovirus (SGEV)	Yes	(Fagundes Silva et al., 2017)	Uncertainty (absence of a proven protocol)[(b)]
Summer grape latent virus (SGLV)	Yes	(Al Rwahnih et al., 2015a)	Uncertainty (absence of a proven protocol)[(b)]
Temperate fruit decay-associated virus (TFDaV)	Yes	(Basso et al., 2015) Sequence available on NCBI	Uncertainty (absence of a proven protocol)[(b)]
Tobacco ringspot virus (TRSV)	Yes	(EPPO Diagnostic protocol PM 7/2)	No uncertainty
Tomato ringspot virus (ToRSV)	Yes	(EPPO Diagnostic protocol PM 7/49; Rowhani et al., 2017)	No uncertainty
Wild vitis virus 1 (WVV-1)	Yes	(Perry et al., 2018)	Uncertainty (absence of a proven protocol)[(b)]

(a): For this agent only genomic (complete or partial) sequence is available, but no primers to specifically detect the virus by RT-PCR and no serological assays are available. However, such primers could be easily developed.
(b): For this recently described agent, a detection assay has been developed. However, there is very limited information as to whether this assay allows the detection of a wide range of isolates of the virus.

3.2. Pest distribution

3.2.1. Pest distribution outside the EU

The viruses of *Vitis* categorised here have been reported in Africa, America, Asia, Oceania and non-EU European countries. Their distribution outside the EU is reported in Table 6, which was prepared using data from the EPPO and/or CABI databases (from 5 December 2018 to 14 January 2019), and, when not available in these sources, from extensive literature searches. For some viruses, data from EPPO and CABI are not consistent; these cases have been highlighted by superscript numbers in Table 6. Available distribution maps are provided in Appendix A.

Table 6: Distribution outside the EU of the categorised viruses of *Vitis*

VIRUS/VIROID name	Distribution according to EPPO and/or CABI crop protection compendium databases	Additional information (refs)
Australian grapevine viroid (AGVd)	na[(a)]	**ASIA:** China, India, Iran, Tunisia; Turkey (Buzkan et al., 2018), Armenia (Margaryan et al., 2018); **AMERICA:** USA (Vargas-Asencio et al., 2017) **OCEANIA:** Australia, (Di Serio et al., 2017a)
Grapevine yellow speckle viroid 2 (GYSVd-2)	**AFRICA:** Nigeria (Map: Appendix A.1)	**ASIA:** China, Iran (Di Serio et al., 2017a)
Blackberry virus S (BlVS)	na[(a)]	**AMERICA:** North America (Martin et al., 2013)
Blueberry leaf mottle virus (BLMoV)	**AMERICA:** Canada, USA (Present, restricted distribution or no details); **ASIA:** Korea[(c)] (Present, no details) (Map: Appendix A.2)	
Grapevine Ajinashika virus (GAV)	na[(a)]	**ASIA:** Japan (Martelli, 2014)
Grapevine Anatolian ringspot virus (GARSV)	na[(a)]	**ASIA:** Turkey, Iran (Martelli, 2014)
Grapevine berry inner necrosis virus (GINV)	na[(a)]	**ASIA:** Japan (Martelli, 2014), China (Fan et al., 2017c)
Grapevine cryptic virus 1 (GCV-1)	na[(a)]	**AMERICA:** USA (Martelli, 2014)
Grapevine deformation virus (GDeV)	**ASIA:** Iran (Map: Appendix A.3)	**ASIA:** Turkey, Iran (Martelli, 2014)
Grapevine endophyte endornavirus (GEEV)	na[(a)]	**AFRICA:** South Africa (Espach et al., 2012)
Grapevine fabavirus (GFabV)	na[(a)]	**ASIA:** China (Fan et al., 2017b), Korea (Jo et al., 2017); **AMERICA:** USA (Al Rwahnih et al., 2016)
Grapevine geminivirus A (GGVA)	na[(a)]	**ASIA:** China (Fan et al., 2017a), Korea (Jo et al., 2018); **AMERICA:** USA (Al Rwahnih et al., 2017a)

VIRUS/VIROID name	Distribution according to EPPO and/or CABI crop protection compendium databases	Additional information (refs)
Grapevine leafroll-associated virus 7 (GLRaV-7)	na[(a)]	**AFRICA:** Egypt, Palestine, Turkey (Al Rwahnih et al., 2017b); **ASIA:** China (Al Rwahnih et al., 2017b); **AMERICA:** California, Chile (Al Rwahnih et al., 2017b); **EUROPE (non-EU):** Albania (Al Rwahnih et al., 2017b), Switzerland (germplasm collection, Reynard et al., 2015)
Grapevine leafroll-associated virus 13 (GLRaV-13)	na[(a)]	**ASIA:** Japan (Ito and Nakaune, 2016)
Grapevine red blotch virus (GRBV)	**AMERICA:** USA (Map: Appendix A.4)	**AMERICA:** Canada; **ASIA:** Korea (Cieniewicz et al., 2017)
Grapevine satellite virus (GSatV)	na[(a)]	**AMERICA:** USA (Al Rwahnih et al., 2013)
Grapevine stunt virus (GSV)	na[(a)]	**ASIA:** Japan (Namba et al., 1981)
Grapevine Tunisian ringspot virus (GTRV)	na[(a)]	**ASIA:** Tunisia (Digiaro et al., 2017)
Grapevine vein-clearing virus (GVCV)	na[(a)]	**AMERICA:** USA (Martelli, 2014)
Grapevine virus E (GVE)	na[(a)]	**AFRICA:** South Africa **ASIA:** Japan, China **AMERICA:** USA (Martelli, 2014)
Grapevine virus I (GVI)	na[(a)]	**OCEANIA:** New Zealand (Blouin et al., 2018)
Grapevine virus J (GVJ)	na[(a)]	**ASIA:** Turkmenistan (GenBank MG637048)
Grapevine virus S (GVS)	na[(a)]	**AMERICA:** USA (JX513899, JX513898)
Peach rosette mosaic virus (PRMV)	**AFRICA:** Egypt **AMERICA:** Canada, USA **ASIA:** Turkey (Map: Appendix A.5)	
Summer grape enamovirus (SGEV)	na[(a)]	**AMERICA:** Brasil (Fagundes Silva et al., 2017), USA (Sabanadzovic, 2009)
Summer grape latent virus (SGLV)	na[(a)]	**AMERICA:** USA (Martelli et al., 2017)
Temperate fruit decay-associated virus (TFDaV)	na[(a)]	**AMERICA:** Brasil (Basso et al., 2015)

VIRUS/VIROID name	Distribution according to EPPO and/ or CABI crop protection compendium databases	Additional information (refs)
Tobacco ringspot virus (TRSV)	**AFRICA:** Democratic Republic of the Congo, Egypt, Malawi, Morocco, Nigeria, Zambia[(b)]; **AMERICA:** Brazil, Canada, Chile, Cuba, Dominican Republic, Mexico, Peru,[(b)] USA, Uruguay, Venezuela; **ASIA:** China, India, Indonesia, Iran, Japan, DPR Korea,[(b)] Kyrgyzstan, Oman,[(b)] Saudi Arabia, Sri Lanka, Taiwan; **EUROPE (non-EU):** Georgia, Russia, Serbia (&Montenegro), Turkey, Ukraine; **OCEANIA:** Australia, New Zealand, Papua New Guinea (Map: Appendix A.6)	
Tomato ringspot virus (ToRSV)	**AFRICA:** Egypt, Togo; AMERICA: Argentina, Brazil, Canada, Chile, Colombia, Mexico, Peru, Puerto Rico, USA, Venezuela; **ASIA:** China, India, Iran, Japan, Jordan, Republic of Korea, Oman, Pakistan, Taiwan[(c)]; **EUROPE (non-EU):** Belarus, Russia, Serbia, Turkey; **OCEANIA:** Fiji, New Zealand (Map: Appendix A.7)	
Wild vitis virus 1 (WVV-1)	na[(a)]	**AMERICA:** USA (Perry et al., 2018)

(a): No information available.
(b): Record found in CABI but not in EPPO.
(c): Record found in EPPO but not in CABI.

3.2.2. Pest distribution in the EU

Are the pests present in the EU territory? If present, are the pests widely distributed within the EU?

Yes, for AGVd, GYSVd-2 GLRaV-7, GV-Sat, GVE, TRSV and ToRSV. None of them is reported to be widely present in the EU.

No, for BlVS, BLMoV, GAV, GARSV, GINV, GCV-1, GDeV, GFabV, GGVA, GLRaV-13, GRBV, GSV, GTRV, GVCV, GVI, GVJ, GVS, PRMV, SGEV, SGLV, TFDaV, WVV-1.

Only some of the viruses of *Vitis* categorised here have been reported in the EU (Table 7), where they are considered to have a restricted distribution or a transient status. Given their restricted distribution, the Panel considers that these viruses fulfil the definitions of non-EU viruses used in the present categorisation efforts. In the case of AGVd and GYSVd-2, reported only in Italy so far (Table 7), the presence has been ascertained in only two (Red Globe and Sultanina Bianca) of 38 *V. vinifera* accessions from a germplasm collection and in the same cultivars grown in two fields located in the Apulia Region (Southern Italy) (Gambino et al., 2014). In contrast, both viroids were not detected in 284 grape samples from several Italian regions, thus supporting their restricted distribution of both viroids in Italy and likely in the EU. GLRaV-7, GV-Sat and GVE, although reported in some MSs, have been mostly found outside the EU. As discussed in a previous EFSA opinion (EFSA PLH Panel, 2019b), *In the case of TRSV and ToRSV, the viruses have been sporadically detected in some MSs, but following the generally old reports, extensive spread of the viruses has not been recorded, thus suggesting that the virus presence is restricted. Moreover, detection of these viruses has been followed by eradication efforts; therefore, TRSV and ToRSV detected in MSs are generally under eradication or have been already eradicated [e.g. TRSV in Czech Republic and ToRSV in Italy in 2018 (EPPO, 2018a, b; TRSV and ToRSV in the Netherlands, EPPO 2018b)]. In addition, some reports on the presence of*

these viruses in the EU MSs are likely incorrect or have been rectified by further publications [e.g. TRSV in Italy (Sorrentino et al., 2013) and ToRSV in France (EPPO, 2018)]. Taking this into account, the presence of TRSV and ToRSV in the EU MSs is considered rare and, in any case, restricted and under official control.

For the viruses not reported to occur in the EU, uncertainties on their possible presence derive from the lack of specific surveys and/or from their only recent discovery. Table 7 reports the currently known EU distribution of the viruses of *Vitis* considered in the present opinion.

Table 7: EU distribution of non-EU viruses or viruses with undetermined standing of *Vitis* (those viruses not reported in the EU are excluded from this table)

VIRUS/VIROID name	EU MSs from which the pest is reported
Australian grapevine viroid (AGVd)	Italy (Gambino et al., 2014)[(a)]
Grapevine yellow speckle viroid 2 (GYSVd-2)	Italy (Gambino et al., 2014)[(a)]
Grapevine leafroll-associated virus 7 (GLRaV-7)	Greece, Hungary, Italy (Al Rwahnih et al., 2017b)
Grapevine satellite virus (GV-Sat)	Hungary (Czotter et al., 2018), France (present in a genetic resource collection) (Candresse et al., 2017)
Grapevine virus E (GVE)	Croatia (Voncina et al., 2017), Poland (Komorowska et al., 2014), Greece (Panailidou et al., 2019)
Tobacco ringspot virus* (TRSV)	Czech Republic (Transient, under eradication),[(a),(b)] Hungary (Present, restricted distribution), Italy (present few occurrences), Poland (Present), Lithuania (Present), United Kingdom (Present, few occurrences), Netherlands (Transient, actionable, under eradication),[(c),(d)] Slovakia (Present)[(a)]
Tomato ringspot virus* (ToRSV)	Croatia (Present, few occurrences), France (Present), Germany (Transient, under eradication), Italy (Transient, under eradication),[(b)] Lithuania (Present), Netherlands (Transient, actionable, under eradication)[(d)] Poland (Present), Slovakia (Present, restricted distribution), Slovenia (Restricted distribution)[(a)]

*: See discussion on presence and prevalence in the EU MSs above.
(a): Record found in CABI but not in EPPO.
(b): Declared eradicated (EPPO, 2018b).
(c): Record found in EPPO but not in CABI.
(d): EPPO Reporting Service November 2018 (EPPO, 2018b).

3.3. Regulatory status

3.3.1. Council Directive 2000/29/EC

'Non-EU viruses' of *Vitis* are included in the Annex I, Part A of the Council Directive 2000/29 as listed in Table 8.

Table 8: Non-EU viruses of *Vitis* in the Council Directive 2000/29/EC

Annex I, Part A	Harmful organisms whose introduction into, and spread within, all Member States shall be banned
Section I	**Harmful organisms not known to occur in any part of the community and relevant for the entire community**
(d)	Viruses and virus-like organisms
3.	Tobacco ringspot virus
4.	Tomato ringspot virus
5.	Viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L., such as: (a) Blueberry leaf mottle virus
	(e) Peach rosette mosaic virus
	(n) Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.

3.3.2. Legislation addressing the hosts of the viruses of *Vitis* categorised in the present opinion

Vitis is regulated in the Directive 2000/29/EC (Table 9). Several viruses categorised here may also infect other hosts or have a wide host range, with the related legislation reported in Section 3.4.1, Table 10. In addition, several organisms categorised here [GSV, the agent of grapevine Ajinashika disease (here reported as GAV), PRMV, TRSV, ToRSV] are also mentioned under the directive 2008/61/EC, establishing the conditions under which certain harmful organisms, plants, plant products and other objects listed in Annexes I to V to Council Directive 2000/29/EC may be introduced into or moved within the Community or certain protected zones thereof, for trial or scientific purposes and for work on varietal selections.

Table 9: Regulations applying to *Vitis* and commodities that may involve the viruses categorised in the present opinion in Annexes III, IV and V of Council Directive 2000/29/EC

Annex III, Part A	**Plants, plant products and other objects the introduction of which shall be prohibited in all Member States**	
Section I	**Plants, plant products and other objects originating outside the Community**	
	Description	Country of origin
15. Plants of *Vitis* L., other than fruits	Third countries other than Switzerland	
Annex IV, Part A	**Special requirements which must be laid down by all member states for the introduction and movement of plants, plant products and other objects into and within all member states**	
Section II	**Plants, plant products and other objects originating in the Community**	
	Plants, plant products and other objects	**Special requirements**
17.	Plants of *Vitis* L., other than fruit and seeds	Official statement that no symptoms of Grapevine Flavescence dorée MLO and *Xylophilus ampelinus* (Panagopoulos) Willems et al. have been observed on the mother-stock plants at the place of production since the beginning of the last two complete cycles of vegetation
Annex IV, Part B	**Special requirements which shall be laid down by all Member States for the introduction and movement of Plants, plant product and other objects into and within certain protected zones**	
Plants, plant products and other objects	**Special requirements**	**Protected zone(s)**
21.1. Plants of *Vitis* L., other than fruit and seeds	Without prejudice to the prohibition in Annex III(A)(15), on introducing plants of *Vitis* L. other than fruits from third countries (except Switzerland) into the Union, official statement that the plants: (a) originate in the protected zones listed in the right hand column; Or (b) have been subjected to an appropriate treatment to ensure freedom from *Daktulosphaira vitifoliae* (Fitch) according to a specification approved in accordance with the procedure referred to in Article 18(2)	CY

21.2. Fruits of *Vitis* L.	The fruits shall be free from leaves and official statement that the fruits: (a) originate in an area known to be free from *Daktulosphaira vitifoliae* (Fitch); or (b) have been grown at a place of production which has been found free from *Daktulosphaira vitifoliae* (Fitch) on official inspections carried out during the last two complete cycles of vegetation; or (c) have been subject to fumigation or other appropriate treatment against *Daktulosphaira vitifoliae* (Fitch)	CY
32. Plants of *Vitis* L., other than fruit and seeds	Without prejudice to the provisions applicable to the plants listed in Annex III(A)(15), IVA(II)17, and IVB21.1, official statement that: (a) the plants originate and have been grown in a place of production in a country where Grapevine flavescence dorée MLO is not known to occur; or (b) the plants originate and have been grown in a place of production in an area free from Grapevine flavescence dorée MLO established by the national plant protection organisation in accordance with the relevant international standards; or (c) the plants originate and have been grown in either the Czech Republic, France (Alsace, Champagne-Ardenne, Picardie (département de l'Aisne), Ile de France (communes de Citry,Nanteuil-sur-Marne et Saâcy-sur-Marne) and Lorraine) or Italy (Apulia, Basilicata and Sardinia); or (cc) the plants originate and have been grown in Switzerland (except the Canton of Ticino and the Misox Valley); or (d) the plants originate and have been grown in a place of production where: (aa) no symptoms of Grapevine flavescence dorée MLO have been observed on the mother-stock plants since the beginning of the last two complete cycles of vegetation; and (bb) either (i) no symptoms of Grapevine flavescence dorée MLO have been found on the plants in the place of production; or,	CZ, FR (Alsace, Champagne-Ardenne, Picardie (département de l'Aisne), Ile de France (communes de Citry, Nanteuil-sur-Marne et Saâcy-sur-Marne) and Lorraine), I (Apulia, Basilicata and Sardinia)
	(ii) the plants have undergone hot water treatment of at least 50 °C for 45 minutes in order to eliminate the presence of Grapevine flavescence dorée MLO	

Annex V	**Plants, plant products and other objects which must be subject to a plant health inspection (at the place of production if originating in the Community, before being moved within the Community – in the country of origin or the consignor country, if originating outside the Community) before being permitted to enter the Community**
Part A	**Plants, plant products and other objects originating from outside the community**
Section I	**Plants, plant products and other objects which are potential carriers of harmful organisms of relevance for the entire Community and which must be accompanied by a plant passport**
1.4.	Plants of *Choisya* Kunth, *Fortunella* Swingle, *Poncirus* Raf., and their hybrids, *Casimiroa* La Llave, *Clausena* Burm. f., *Murraya* J. Koenig ex L., *Vepris* Comm., *Zanthoxylum* L. and *Vitis* L., other than fruits and seeds
Section II	**Plants, plant products and other objects which are potential carriers of harmful organisms of relevance for certain protected zones, and which must be accompanied by a plant passport valid for the appropriate zone when introduced into or moved within that zone**
1.3.	Plants, other than fruit and seeds, of *Amelanchier* Med., *Castanea* Mill., *Chaenomeles* Lindl., *Cotoneaster* Ehrh., *Crataegus* L., *Cydonia* Mill., *Eriobotrya* Lindl., *Eucalyptus* L'Herit., *Malus* Mill., *Mespilus* L., *Photinia davidiana* (Dcne.) Cardot, *Pyracantha* Roem., *Pyrus* L., *Sorbus* L. and *Vitis* L.
1.9.	Fruits (bolls) of *Gossypium* spp. and unginned cotton, fruits of *Vitis* L.
Part B	**Plants, plant products and other objects originating in territories, other than those territories referred to in Part A**
Section II	**Plants, plant products and other objects which are potential carriers of harmful organisms of relevance for certain protected zones**
6a.	Fruits of *Vitis* L.

3.3.3. Legislation addressing the organisms that vector the viruses of *Vitis* L. categorised in the present opinion (Directive 2000/29/EC)

The nematode vectors of PRMV, TRSV and ToRSV and possibly of other viruses belonging to the genera *Nepovirus* and *Cheravirus* are listed in Directive 2000/29/EC:

- *Longidorus diadecturus* L. is listed in Annex I, AI, position (a) 13.
- *Xiphinema americanum* sensu lato is listed in Annex I, AI, position (a) 26.
- *Xiphinema americanum* sensu lato is also listed in Annex IV, AI:
  - 31 – Plants of *Pelargonium* L'Herit. ex Ait., intended for planting, other than seeds, originating in countries where Tomato ringspot virus is known to occur:
    a) where *Xiphinema americanum* Cobb sensu lato (non-European populations) or other vectors of Tomato ringspot virus are not known to occur;
    b) where *Xiphinema americanum* Cobb sensu lato (non-European populations) or other vectors of Tomato ringspot virus are known to occur.
- *Xiphinema californicum* is listed in Annex I, AI, position (a) 27.
- *Xiphinema californicum* is also listed in Annex IV, AI:
  - 31. Plants of *Pelargonium* L'Herit ex Ait., intended for planting, other than seeds, originating in countries where Tomato ringspot virus is known to occur:
    a) where *Xiphinema americanum* Cobb sensu lato (non-European populations) or other vectors of Tomato ringspot virus are not known to occur;
    b) where *Xiphinema americanum* Cobb sensu lato (non-European populations) or other vectors of Tomato ringspot virus are known to occur.

The arthropods identified as potential vectors of some viruses of *Vitis* categorised here [*Colomerus vitis* (Acari, Eriophyidae), *Spissistilus festinus* (Hemiptera, Membracidae), *Arboridia apicalis* (Hemiptera, Cicadellidae), *Pseudococcus comstocki* (Hemiptera, Pseudococcidae)], are not explicitly mentioned in the Directive 2000/29/EC.

3.4. Entry, establishment and spread in the EU

3.4.1. Host range

While most viruses categorised in the present opinion have been reported only from *Vitis*, seven viruses have a host range including many (PRMV, ToRSV and TRSV) or few other plant species (BlVS, BLMoV, GRBV and TFDaV). For each one of these viruses, Table 10 integrates data from the previous Scientific Opinion (EFSA PLH Panel, 2019a) with additional information on their natural hosts in addition to *Vitis* spp. However, it must be considered that for all the listed viruses, there is uncertainty about the possible future natural hosts that have so far not been reported. These uncertainties are of course even higher for recently discovered viruses.

Table 10: Natural hosts other than *Vitis* of the viruses categorised in the present opinion, together with their regulatory status and the associated uncertainties

VIRUS/VIROID name	Other hosts (refs)	Regulation addressing other hosts[(a)]	Uncertainties
Australian Grapevine viroid (AGVd)	No other known natural host		Experimental hosts in different botanical families (Di Serio et al., 2017c). Additional natural hosts may exist
Grapevine yellow speckle viroid 2 (GYSV-2)	No other known natural hosts		No other known experimental host. Therefore, existence of additional natural hosts is considered unlikely
Blackberry virus S (BlVS)	*Rubus* sp.	*Rubus* sp.: IVAI 19.2, 24; IVAII 12; VA 2.1; VBI 1	Natural hosts belong to different families (Sabanadzovic and Ghanem-Sabanadzovic, 2009). Additional natural hosts may exist
Blueberry leaf mottle virus (BLMoV)	EPPO: MAJOR: *Vaccinium corymbosum* MINOR: *Vaccinium angustifolium*, *Vaccinium myrtilloides*	*Vaccinium* sp.: VBI 3	Natural hosts belong to different families (Rowhani et al., 2017). Additional natural hosts may exist
Grapevine Ajinashika virus (GAV)	No other known natural hosts		Virus very poorly characterised (Namba et al., 1979, 1991; Martelli, 2014). Additional natural hosts may exist
Grapevine Anatolian ringspot virus (GARSV)	No other known natural hosts		Experimental hosts in different families (Digiaro et al., 2003; Elbeaino et al., 2012). Nepoviruses frequently have a wide host range. Additional natural hosts may exist
Grapevine berry inner necrosis virus (GINV)	No other known natural hosts		Experimental hosts in different families (Yoshikawa et al., 1997). Additional natural hosts may exist
Grapevine cryptic virus 1 (GCV-1)	No other known natural hosts		Virus poorly characterised (Sabanadzovic, 2009; Sabanadzovic and Abou, 2012). Unclear whether this is a plant virus
Grapevine deformation virus (GDeV)	No other known natural hosts		Experimental hosts in different families (Digiaro et al., 2017). Nepoviruses frequently have a wide host range. Additional natural hosts may exist
Grapevine endophyte endornavirus (GEEV)	No other known natural hosts		Virus only described based on NGS data (Espach et al., 2012). Unclear whether this is a plant virus
Grapevine fabavirus (GFabV)	No other known natural hosts		Recently described virus (Al Rwahnih et al., 2016). Additional natural hosts may exist

VIRUS/VIROID name	Other hosts (refs)	Regulation addressing other hosts[(a)]	Uncertainties
Grapevine geminivirus A (GGVA)	No other known natural hosts		Recently described virus (Al Rwahnih et al., 2017a). Additional natural hosts may exist
Grapevine leafroll-associated virus 7 (GLRaV-7)	No other known natural hosts		Although GLRaV-7 has been experimentally transmitted by dodder to two herbaceous hosts in different families (Al Rwahnih et al., 2017b), velariviruses infecting grapevine are not known to have other natural hosts. Therefore, existence of additional natural hosts is considered unlikely
Grapevine leafroll-associated virus 13 (GLRaV-13)	No other known natural hosts		Recently described virus (Ito and Nakaune, 2016). Ampeloviruses infecting grapevine are not known to have other natural hosts. Therefore, existence of additional natural hosts is considered unlikely
Grapevine red blotch virus (GRBV)	*Rubus armeniacus*	*Rubus* sp.: IVAI 19.2, 24; IVAII 12; VA 2.1; VBI 1	Natural hosts belong to different families (Bahder et al., 2016b). Additional natural hosts may exist
Grapevine satellite virus (GV-Sat)	No other known natural hosts		Recently described virus. Additional natural hosts may exist
Grapevine stunt virus (GSV)	No other known natural hosts		Very poorly characterised virus. Additional natural hosts may exist
Grapevine Tunisian ringspot virus (GTRV)	No other known natural hosts.		Experimental hosts belong to different families (Ouertani et al., 1992). Nepoviruses frequently have a wide host range. Additional natural hosts may exist
Grapevine vein-clearing virus (GVCV)	No other known natural hosts		Recently described virus (Zhang et al., 2011). Additional natural hosts may exist
Grapevine virus E (GVE)	No other known natural hosts		Vitiviruses infecting grapevine are not known to have other natural hosts. Therefore, existence of additional natural hosts is considered unlikely
Grapevine virus I (GVI)	No other known natural hosts		Recently described virus (Blouin et al., 2018). Vitiviruses infecting grapevine are not known to have other natural hosts. Therefore, existence of additional natural hosts is considered unlikely
Grapevine virus J (GVJ)	No other known natural hosts		Recently described virus (Diaz-Lara et al., 2018), vitiviruses infecting grapevine are not known to have other natural hosts. Therefore, existence of additional natural hosts is considered unlikely
Grapevine virus S (GVS)	No other known natural hosts		Poorly described virus. Additional natural hosts may exist

VIRUS/VIROID name	Other hosts (refs)	Regulation addressing other hosts[(a)]	Uncertainties
Peach rosette mosaic virus (PRMV)	EPPO: MAJOR: *Prunus persica* WILD/WEED: *Rumex crispus, Solanum carolinense, Taraxacum officinale* CABI: *Taraxacum officinale, Vaccinium corymbosum* *Taraxacum officinale, Solanum carilonennse, Rumex crispus, Acer rubrum* (Martelli and Uyemoto, 2011)	*Prunus* sp.: IIIAI 9,18; IVAI 7.4, 7.5, 14.1, 16.6, 19.2, 23.1, 23.2: IVAII 12, 16; VB 20.5, VAI 1.1, 2.1, VAII 1.2, VBI 1, 2, 3, 6; *Solanum* sp.: IIIAI 10, 11, 12; IVAI 25.1, 25.2, 25.3, 25.4, 25.4.1, 25.4.2, 25.5, 25.6, 25.7, 25.7.1, 25.7.2, 28.1, 36.2, 45.3, 48; IVAII 18.1, 18.1.1, 18.2, 18.3, 18.3.1, 18.4, 18.5, 18.6, 18.6.1, 18.7, 26.1, 27; IVBI 20.1, 20.2; VAI 1.3, 2.4; VAII 1.5; VB 1, 3, 4; *Vaccinium* sp.: VBI 3; *Acer* sp.: IIIAI 7, IVAI 2.1, 2.2, 7.1.1, VBI 2, 5, 6.	Natural hosts belong to different families (EPPO, 2019). Additional natural hosts may exist
Summer grape enamovirus (SGEV)	No other known natural hosts	–	Poorly characterised virus (Sabanadzovic, 2009; Fagundes Silva et al., 2017). Additional natural hosts may exist
Summer grape latent virus (SGLV)	No other known natural hosts		Poorly characterised virus (Sabanadzovic and Abou, 2012; Al Rwahnih et al., 2015a). Additional natural hosts may exist
Temperate fruit decay-associated virus (TFDaV)	*Malus, Pyrus* (Basso et al., 2015)	*Malus* sp.: IIIAI 9, 18; IIIB 1; IVAI 7.4, 7.5, 14.1, 17, 19.2, 22.1, 22.2; IVAII 9, 15; IVB 21; VAI 1.1; VAII 1.3, 1.4; VBI 3, 6; VBII 3, 4; *Pyrus* sp.: IIIAI 9, 18; IIIB 1; IVAI 7.4, 7.5, 14.1, 17, 19.2, 20; IVAII 9, 13; IVB 21; VAI 1.1; VAII 1.3, 1.4; VBI 3, 6; VBII 3, 4.	Natural hosts belong to different families (Basso et al., 2015). Additional natural hosts may exist

VIRUS/VIROID name	Other hosts (refs)	Regulation addressing other hosts[(a)]	Uncertainties
Tobacco ringspot virus (TRSV)	EPPO: MAJOR: *Glycine max, Nicotiana tabacum* MINOR: *Cucurbita pepo, Cucurbitaceae, Vaccinium, Vaccinium corymbosum*, woody plants INCIDENTAL: *Anemone, Capsicum, Carica papaya, Cornus, Fraxinus, Gladiolus, Iris, Lupinus, Malus domestica, Mentha; Narcissus pseudonarcissus, Pelargonium, Petunia, Phlox subulata, Prunus avium, Pueraria montana, Rubus fruticosus, Sambucus, Solanum melongena, Sophora microphylla*	*Capsicum sp.:* IVAI 16.6, 25.7, 36.3, IVAII 18.6.1, 18.7; VBI 1,3; *Fraxinus* sp.: IVAI 2.3, 2.4, 2.5, 11.4; VBI 2, 5, 6; *Gladiolus* sp.: IVAII 24.1, VAI 3; *Lupinus* sp.: VAI 2.1; *Narcissus* sp.: IVAI 30, IVAII 22, 24.1; VAI 3; *Vaccinium* sp.: VBI 3 *Iris* sp.: IVAII 24.1, VAI 3; *Pelargonium* sp.: IVAI 27.1, 27.2, 31; IVAII 20, VAI 2.1; VBI 2; *Prunus* sp.: IIIAI 9,18; IVAI 7.4, 7.5, 14.1, 16.6, 19.2, 23.1, 23.2: IVAII 12, 16; IVB 20.5, VAI 1.1, 2.1, VAII 1.2, VBI 1, 2, 3, 6; *Rubus* sp.: IVAI 19.2, 24; IVAII 12; VAI 2.1; VBI 1; *Solanum* sp.: IIIAI 10, 11, 12; IVAI 25.1, 25.2, 25.3, 25.4, 25.4.1, 25.4.2, 25.5, 25.6, 25.7, 25.7.1, 25.7.2, 28.1, 36.2, 45.3, 48; IVAII 18.1, 18.1.1, 18.2, 18.3, 18.3.1, 18.4, 18.5, 18.6, 18.6.1, 18.7, 26.1, 27; IVBI 20.1, 20.2; VAI 1.3, 2.2, 2.4; VAII 1.5; VBI 1, 3, 4; *Vitis* sp.: IIIAI 15; IVAII 17, IVB 21.1, 21.2, 32; VAI 1.4, VAII 1.3, 1.9, 6a.	This virus has a large natural host range; it is unlikely that all natural hosts have been identified

VIRUS/VIROID name	Other hosts (refs)	Regulation addressing other hosts[(a)]	Uncertainties
Tomato ringspot virus (ToRSV)	EPPO: MAJOR: *Pelargonium x hortorum, Prunus persica, Rubus idaeus* MINOR: *Fragaria x ananassa, Gladiolus, Hydrangea macrophylla, Pelargonium, Prunus, Prunus avium, Prunus domestica, Prunus dulcis, Punica granatum, Ribes nigrum, Ribes uva-crispa, Rosa, Rubus, Rubus fruticosus, Vaccinium corymbosum,* woody plants	*Pelargonium* sp.: IVAI 27.1, 27.2, 31; IVAII 20, VAI 2.1; VBI 2; *Prunus* sp.: IIIAI 9,18; IVAI 7.4, 7.5, 14.1, 16.6, 19.2, 23.1, 23.2: IVAII 12, 16; IVB 20.5, VAI 1.1, 2.1, VAII 1.2, VBI 1, 2, 3, 6; *Rubus* sp.: IVAI 19.2, 24; IVAII 12; VAI 2.1; VBI 1; *Fraxinus* sp.: IVAI 2.3, 2.4, 2.5, 11.4; VBI 2, 6; *Gladiolus* sp.: IVAII 24.1, VAI 3; *Vaccinium* sp.: VBI 3 *Fragaria* sp.: IIIAI 18; IVAI 19.2, 21.1,21.2, 21.3; IVAII 12, 14, 24.1; IVB 2.1;	This virus has a large natural host range; it is unlikely that all natural hosts have been identified
	INCIDENTAL: *Fraxinus americana, Malus, Rubus laciniatus, Solanum lycopersicum, Solanum tuberosum* WILD/WEED: *Stellaria media, Taraxacum officinale* *Cydonia* (EFSA PLH Panel, 2019b)	*Narcissus* sp.: IIBII 4; IVAI 30; IVAII 22, 24.1; IVB 3; *Punica* sp.: IVAI 16.6; IVB 3; VBI 3 *Ribes* sp.: IVAI 19.2; VBI 3; *Rosa* sp.: IIIAI 9, IVAI 44, 45.2; VBI 2; *Solanum* sp.: IIIAI 10,11,12; IVAI 25.1, 25.2, 25.3, 25.4, 25.4.1, 25.4.2, 25.5, 25.6, 25.7, 25.7.1, 25.7.2, 28.1, 36.2, 45.3, 48; IVAII 18.1, 18.1.1, 18.2, 18.3, 18.3.1, 18.4, 18.5, 18.6, 18.6.1, 18.7, 26.1, 27; IVBI 20.1, 20.2; VAI 1.3, 2.2, 2.4; VAII 1.5; VBI 1, 3, 4.	
Wild vitis virus 1 (WVV-1)	No other known natural hosts		Recently described virus (Perry et al., 2018). Additional natural hosts may exist

(a): Numbers reported in this column refer to articles from Council Directive 2000/29/EC.

Current legislation, detailed in Sections 3.3.2 and 3.4.1, bans the import of plants of *Vitis* other than fruits from third countries other than Switzerland (IIIAI 15), and formulates special requirements for introduction and movement of plants of *Vitis* into and within MSs (Annexes IV and VA). The most relevant is the request that phytosanitary certificates accompany the consignments. Other hosts (e.g. *Acer* sp., *Capsicum* sp., *Cydonia* sp., *Fragaria* sp., *Fraxinus* sp., *Gladiolus* sp., *Iris* sp., *Lupinus* sp., *Malus* sp., *Narcissus* sp., *Pelargonium* sp., *Prunus* sp., *Punica* sp., *Pyrus* sp., *Ribes* sp., *Rosa* sp., *Rubus* sp., *Solanum* sp., *Vaccinium* sp.) of the viruses categorised here are also mentioned in the legislation.

However, especially for those viruses with a wide host range (e.g. PRMV, TRSV, ToRSV), there are some hosts [e.g. *Sambucus nigra, Malva, Plantago* spp. (*lanceolata* and *major*), *Taraxacum* spp., *Balsamorhiza sagittata, Glycine max, Cucurbitaceae* (*Cucurbita pepo*), *Anemone* spp., *Carica papaya*, *Cornus* spp., *Mentha* spp., *Phlox subulata, Pueraria montana, Sambucus* spp., *Sophora microphylla, Hydrangea macrophylla, Stellaria media*] for which the legislation imposes relatively weak requirements. Plants for planting coming from non-EU European countries and from Mediterranean countries are not subjected to specific requirements (even if some of those viruses have been reported in these countries) while plants for planting, excluding seeds, from other Third Countries are only required to be produced in nurseries and to be free from symptoms of harmful organisms (Annex IVAI, points from 39 to 42). As a consequence, for several viruses, the potential entry pathways associated with non-*Vitis* hosts are not entirely regulated (see Section 3.4.2 below).

3.4.2. Entry

Are the pests able to enter into the EU territory? (Yes or No) If yes, identify and list the pathways!

Yes, for the viruses of *Vitis* categorised here. These agents may enter EU territory with infected plants for planting, although the main pathway plants of *Vitis* is closed by existing legislation. Some of them have additional pathways including plant for planting of other natural hosts, seeds, pollen and/or vectors.

All the viruses of *Vitis* categorised here can be transmitted by vegetative propagation material. Therefore, plants for planting of *Vitis* must be considered as being potentially the most important entry pathway. Moreover, some of these viruses have additional natural hosts that are also vegetatively propagated (e.g. *Cydonia* spp., *Malus* spp., *Prunus* spp., *Pelargonium* spp., *Pyrus* spp., *Rubus* spp., *Rosa* spp., *Vaccinium* spp.), thus providing additional entry pathways. Some viruses of *Vitis* categorised here can also be transmitted by seeds, and/or pollen, and/or vectors (Table 4) that may also provide entry pathways. Information on seed, pollen and vector transmission is limited for some of the categorised viruses, especially for those recently discovered. Uncertainties on the transmission mechanisms for these viruses generate uncertainties on the possible entry pathways to be considered. The major entry pathways for the viruses categorised here are summarised in Table 11.

Current legislation prohibits entry in the EU of commercial plants of *Vitis* (the definition of which includes pollen for pollination purposes and seeds) with the exception of plants coming from Switzerland (Annex IIIAI 15). Import from non-EU countries of plants for planting of other hosts (e.g. *Cydonia*, *Malus*, *Prunus*, *Pyrus*, and/or *Rosa*) of some of the viruses categorised here (e.g. TRSV, ToRSV and PRMV) is also banned (Annex IIIAI 9 and 18), but introduction of dormant plants (free from leaves, flowers and fruit) of *Cydonia*, *Malus*, *Prunus* and *Pyrus* and their hybrids is permitted from Mediterranean countries, Australia, New Zealand, Canada and the continental states of the USA (Annex IIIAI 18). This means that the entry pathway of plants for planting of these host genera is only partially regulated for those viruses present in the above-mentioned countries. Requirements applying to plants for planting – in general (e.g. Annex IVAI 33, 36.1, 39, 40, 43, 46) or specifically referring to *Vitis* and other hosts (e.g. Annex IVB 21.1, 21.2, 32) in relation to other harmful organisms may contribute to restrict the areas from which plants for planting can be imported as dormant plants or the areas where such material can be planted. However, these requirements have likely a minor effect to mitigate virus entry in the EU.

Import of seeds of *Vitis* is prohibited from Third Countries other than Switzerland, while seeds from other hosts are currently either regulated (e.g. *Prunus*) or, in some cases, not regulated (e.g. *Cydonia*, *Malus* and *Pyrus*).

The import of fruits of *Vitis* and of other hosts is not banned, but in this and in some other cases such as for *Cydonia, Malus, Prunus* and *Pyrus*, the fruits must be accompanied by a phytosanitary certificate. This measure mostly targets the potential import of fruit flies in consignments and its relevance for the viruses categorised here is unclear. This situation is noteworthy for those agents that may be seed-transmitted (BLMoV, TRSV, ToRSV, PRMV), although fruit import is unlikely to represent a pathway of major relevance.

Although Annex IVAI, at point 19.2, requires *official statement that no symptoms of diseases caused by the relevant harmful organisms* (e.g. non-European viruses and virus-like organisms) *have been observed on the plants at the place of production since the beginning of last complete cycle of vegetation*, this measure is considered to have limited impact in preventing import of infected plants of *Cydonia, Fragaria Malus, Prunus, Pyrus, Ribes, Rubus* intended for planting. This is because symptoms in the infected plants are often not obvious. Similarly, Annex IVAI point 22.1, applies to *plants of Malus*

intended for planting, other than seeds, originating in countries where the relevant harmful organisms (e.g. *ToRSV*) *are known to occur on Malus* and determines requirements for testing and certification. However, this measure does not apply to *Cydonia, Fragaria, Prunus, Pyrus, Ribes* and *Rubus*, which may host other viruses categorised here. Similar requirements, without prejudice to other provisions (e.g. Annex I and III), are established in Annex IV with respect to plants of *Prunus* and *Rubus* intended for planting (Annex IV AI 23.2 and 24, respectively) for which certification excluding the presence of some viruses categorised here (e.g. ToRSV) is requested. Also in this case, the needed certification and testing requirements for plants for planting are limited to only some of the viruses of *Vitis* categorised here that may infect *Prunus* and *Rubus*, thus regulating only partially the related entry pathways. The Panel also notes that this legislation is complex, which may create interpretation problems, and that it does not completely eliminate the risk of introduction on the plant for planting pathway for at least some of the viruses categorised here.

The request of plant passport for movement of plants, plant products and other objects into and within all MSs (Annex V) may impair introduction/spreading of viruses explicitly mentioned in Annex IAI (BLMoV, PRMV, TRSV, ToRSV), but might not be so efficient for the other viruses categorised here, which are not explicitly mentioned, and are only covered by the general and possibly difficult to interpret term of *Non-European viruses and virus-like organism*s.

Annex VA lists all the potential hosts which must be inspected and accompanied by a plant passport. This measure may impair the spread of viruses on *Vitis* and other species that are regulated in the EU (such as *Cydonia*, *Malus*, *Prunus* and *Pyrus*), but has a very limited effect on the dissemination of viruses on non-regulated host plants.

Some viruses of *Vitis* categorised here are transmitted by nematodes (PRMV, TRSV, ToRSV). Viruliferous nematodes entering the EU may introduce the associated viruses. The main entry pathway for nematodes are soil and growing media from areas where the nematodes occur. These pathways are closed by current legislation (Annex IIIAI 14 of EU Directive 2000/29/EC) for the growing media as such. Plants for planting can be imported with growing media sufficient to substain plant vitality (but it is not clear what is that volume). According to a previous EFSA pest categorisation of *Xiphinema americanum* sensu lato (EFSA PLH Panel, 2018a), only *Soil and growing media attached to plants (hosts or non-host plants) from areas where the nematode occurs* is a major entry pathway for nematores vectoring viruses. *This pathway is not closed as plants may be imported with soil or growing media attached to sustain their live*. However, this possible pathway only applies to non-*Vitis* hosts of the viruses categorised here. In the same opinon *soil and growing media attached to (agricultural) machinery, tools, packaging materials* has been identified as an entry pathway, but it *is not considered an important pathway* (EFSA PLH Panel, 2018a).

Some viruses of *Vitis* categorised here are transmitted by insects and mites: GINV, GRBV, GSV, GVE are transmitted by *Colomerus vitis* (Acarina, Eriophyidae), *Spissistilus festinus* (Hemiptera, Membracidae), *Arboridia apicalis* (Hemiptera, Cicadellidae) and *Pseudococcus comstocki* (Hemiptera, Pseudococcidae), respectively. *Colomerus vitis*, the vector of GINV is mainly associated with leaves, shoots and buds of *Vitis* (Bernard et al., 2005; Lucchi, 2014). Therefore, entry of this mite with consignments of fruits and/or of other hosts is considered unlikely. *Spissistilus festinus* (Hemiptera, Membracidae) and *Arboridia apicalis* (Hemiptera, Cicadellidae, Typhlocibinae), vectors of GRBV and GSV, respectively, can infest a wide range of other hosts and are mainly associated with stems and leaves, respectively (Andersen et al., 2002; Sudarshana et al., 2015; Arai and Toyama, 2018). Therefore, entry of these insects in association with fruits is considered unlikely, while entry in association with unregulated hosts can not be excluded. Although the vector of GVE, the polyphagus mealybug *Pseudococcus comstocki*, is generally associated with leaves, petioles, stems, bark and roots, it can also infest fruits. Therefore, fruits may provide a pathway for the entry of *P. comstocki,* although it might be considered minor because the viruliferous insects would have to survive treatments during the growing season and sorting and packing operations before export.

In summary, the current legislation closes the plants for planting (and pollen) entry pathway for some of the viruses categorised here, especially for those infecting only *Vitis*. For other ones, especially those with a wide host range, this pathway is only partially regulated because the viruses may enter the EU through plant for planting of other species hosting them. Finally, the import of seeds of several hosts (*Cydonia*, *Malus*, *Prunus* and *Pyrus*) is generally not regulated and there are also weak points in the legislation addressing nematode and insect vectors.

The import of plants of *Vitis*, other than fruits, which includes pollen for pollination purposes and seeds, is banned by existing legislation, with the exception of material originated in Switzerland. None of the viruses categorised here is known to be present in Switzerland, with uncertainties. Taking these

uncertainties into consideration, the plant for planting pathway (including pollen and seeds) of *Vitis* is considered closed for all the agents categorised here. It will therefore not be further analysed.

The import of *Vitis* fruits is allowed, so that this may constitute a pathway for those viruses that are seed-borne in *Vitis*, in particular for BLMoV and PRMV. However, this pathway is considered of very minor significance because it is unlikely that seeds from fruits for consumption will be used to grow plants.

As a consequence, only the pathway of plants for planting of non-*Vitis* hosts and the pathway of viruliferous vectors have been analysed in detail below. Table 11 summarises the role of these pathways for the potential entry of the categorised viruses and the respective regulatory status.

Table 11: Major potential entry pathways identified under the current legislation for the viruses of *Vitis* under categorisation

VIRUS/VIROID name	Plants for planting (including seeds and pollen) of non-*Vitis* hosts[(a)]	Viruliferous vectors[(a)]	Uncertainty factors
Australian grapevine viroid (AGVd)	Pathway possibly open: other natural hosts may exist	Not a pathway: AGVd is not known to have vector(s)	– Geographical distribution – Biology (host range and transmission mechanism)
Grapevine yellow speckle viroid 2 (GYSVd-2)	Not a pathway: GYSVd-2 is not known to have other natural host(s)	Not a pathway: GYSVd-2 is not known to have vector(s)	– Geographical distribution – Biology (host range and transmission mechanism)
Blackberry virus S (BlVS)	Pathway partially regulated for *Rubus* and possibly open for other potential hosts that may exist	Pathway possibly open: unknown leafhopper vector(s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Blueberry leaf mottle virus (BLMoV)	Pathway partially regulated for *Vaccinium*	Pathway possibly open: unknown nematode vector(s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Grapevine Ajinashika virus (GAV)	Pathway possibly open: other natural hosts may exist	Panel unable to conclude on this pathway because virus biology is not known	– Geographical distribution – Seed, pollen or vector transmission – Existence of other natural hosts
Grapevine Anatolian ringspot virus (GARV)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown nematode vector(s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Grapevine berry inner necrosis virus (GINV)	Pathway possibly open: other natural hosts may exist	Pathway closed: association of *Colomerus vitis* with imported consignments is considered unlikely	– Geographical distribution – Existence of other natural hosts – *C. vitis* association with consignments of fruits and other hosts
Grapevine cryptic virus 1 (GCV-1)	Not a pathway: GCV-1 is not known to have other natural host(s)	Not a pathway: GCV-1 is not known to have vector(s)	– Geographical distribution – Uncertainty whether this is a fungal or plant virus
Grapevine deformation virus (GDeV)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown nematode vector(s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Grapevine endophyte endornavirus (GEEV)	Not a pathway: GEEV is not known to have other natural host(s)	Not a pathway: GEEV is not known to have vector(s)	– Geographical distribution – Uncertainty whether this is a fungal or plant virus

VIRUS/VIROID name	Plants for planting (including seeds and pollen) of non-*Vitis* hosts[(a)]	Viruliferous vectors[(a)]	Uncertainty factors
Grapevine fabavirus (GFabV)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown vector (s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Grapevine geminivirus A (GGVA)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown vector (s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Grapevine leafroll-associated virus 7 (GLRaV-7)	Not a pathway: GLRaV-7 is not known to have other natural host(s)	Not a pathway: GLRaV-7 is not known to have vector(s)	– Geographical distribution – Existence of other natural hosts, which is, however, considered unlikely
Grapevine leafroll-associated virus 13 (GLRaV-13)	Not a pathway: GLRaV-13 is not known to have other natural host(s)	Pathway possibly open: unknown vector (s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts, which is, however, considered unlikely
Grapevine red blotch virus (GRBV)	Pathway partially regulated for *Rubus*	Pathway possibly open: association of *Spissistilus festinus* with consignments of unregulated plants cannot be excluded	– Geographical distribution – Existence of other natural hosts – *S. festinus* association with consignments of unregulated plants
Grapevine satellite virus (GSatV)	Pathway possibly open: other natural hosts may exist	Panel unable to conclude on this pathway because the helper virus is not known	– Helper virus unknown
Grapevine stunt virus (GSV)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: association of *Arboridia apicalis* with consignments of unregulated plants cannot be excluded	– Geographical distribution – Existence of other natural hosts – *A. apicalis* association with consignments of unregulated plants
Grapevine Tunisian ringspot virus (GTRV)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown nematode vector(s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Grapevine vein-clearing virus (GVCV)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown vector (s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Grapevine virus E (GVE)	Not a pathway: GVE is not known to have other natural host(s)	Pathway possibly open: association of *Pseudococcus comstocki* with consignments of unregulated plants cannot be excluded	– Geographical distribution – *P. comstocki* association with consignments of unregulated plants – Existence of other natural hosts, which is however considered unlikely
Grapevine virus I (GVI)	Not a pathway: GVI is not known to have other natural host(s)	Pathway may be open: possible unknown vector(s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts, which is however considered unlikely
Grapevine virus J (GVJ)	Not a pathway: GVJ is not known to have other natural host(s)	Pathway possibly open: unknown vector (s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts, which is however considered unlikely

VIRUS/VIROID name	Plants for planting (including seeds and pollen) of non-*Vitis* hosts[(a)]	Viruliferous vectors[(a)]	Uncertainty factors
Grapevine virus S (GVS)	Pathway possibly open: other natural hosts may exist	Not a pathway: GVS is not known to have vector(s)	– Geographical distribution – Existence of other natural hosts
Peach rosette mosaic virus (PRMV)	Pathway partially regulated: because of the wide range of regulated and unregulated hosts in the existing legislation	Pathway partially regulated: viruliferous nematodes can enter with the soil and growing media still attached to plants	– Geographical distribution
Summer grape enamovirus (SGEV)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown vector (s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Summer grape latent virus (SGLV)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown vector (s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts
Temperate fruit decay-associated virus (TFDaV)	Pathway possibly open: the pathway for *Malus* and *Pyrus* (EFSA PLH Panel, 2019b) is closed by existing legislation but other natural hosts may exist	Panel unable to conclude on this pathway because virus biology is not known	– Geographical distribution – Seed, pollen or vector transmission – Existence of other natural hosts
Tobacco ringspot virus (TRSV)	Pathway partially regulated: because of the wide range of regulated and unregulated hosts in the existing legislation	Pathway partially regulated: viruliferous nematodes can enter with the soil and growing media still attached to plants	– Geographical distribution
Tomato ringspot virus (ToRSV)	Pathway partially regulated: because of the wide range of regulated and unregulated hosts in the existing legislation	Pathway partially regulated: viruliferous nematodes can enter with the soil and growing media still attached to plants	– Geographical distribution
Wild vitis virus 1 (WVV-1)	Pathway possibly open: other natural hosts may exist	Pathway possibly open: unknown vector (s) may exist	– Geographical distribution – Vector transmission – Existence of other natural hosts

(a): Pathway possibly open: Means that the existence of the pathway, non-closed by current legislation, is not supported by direct evidence regarding the biology of that virus, but indirect evidence, based on comparisons with the biology of closely related viruses (in the same genus or in the same family), suggests that it could exist, and this possibility cannot be ruled out.
Pathway exists: There is way in which the organism can enter.
Not a pathway: The pathway does not exist: there is no known way in which the organism can enter. May be better: there is no evidence supporting the existance of the pathway.
Pathway open: Only applicable if the pathway exists, open means that there is no regulation or ban that prevents this pathway.
Pathway closed: Opposite of 'pathway open': there is a ban that completely prevents entry on the pathway.
Pathway regulated: Regulations exist that limit the probability of entry along the pathway, but there is not a complete ban on imports, so some risk of entry remains.
Pathway partially regulated: The pathway consists of several subpathways, some of which are open, and others are closed (e.g. regulation for some hosts, but not for others). Maybe better: the legislation does not cover all the possible entry subpathways.

There is no data in Eurostat on imports of dormant host plants for planting infected by the categorised viruses from Third Countries into the EU territory (Source: Eurostat, search done on 5 December 2018).

Interceptions of the viruses categorised here were searched in Europhyt database on 10 January 2019 (EUROPHYT, 2019). Only six and five interceptions of TRSV and ToRSV were reported, respectively, mainly from ornamental hosts. They date back to more than 10 years ago (Table 12). No interception was registered in the case of AGVd, GYSV-2, BlVS, BLMoV, GAV, GARSV, GDeV, GFabV, GGVA, GLRaV-7, GRBV, GTRV, GVE and PRMV. No interception was reported regarding the grapevine stunt agent. GINV, GCV-1, GEEV, GLRaV-13, GV-Sat, GVCV, GVI, GVJ, GVS, SGEV, SGLV, TFDaV and WVV-1 are not listed in Europhyt.

Table 12: Interceptions of TRSV and ToRSV in the EU (Source: Europhyt, search done on 10 January 2019)

VIRUS/VIROID name	Europhyt interception	Year of interception	Origin	Plant species on which it has been intercepted
Tobacco ringspot virus (TRSV)	6	2000	Portugal	*Pelargonium* sp.
		2001	Israel	*Bacopa* sp.
		2001	UK	*Pelargonium* sp.
		2008	Israel	*Impatiens* sp.
		2008	Israel	*Impatiens* sp.
		2008	Israel	*Impatiens* New Guinea hybrids
Tomato ringspot virus (ToRSV)	5	1997	Israel	*Pelargonium* sp.
		1997	Israel	*Pelargonium* sp.
		1999	USA	*Pelargonium* sp.
		1999	France	*Pelargonium* x *hortorum*
		2008	Italy	*Malus* sp.

The analysis of entry pathways is affected by uncertainties coming from (a) the transmission biology and host range of the agents and (b) their geographical distribution.

In summary, the only pathways the Panel considered relevant for the entry of the viruses categorised here are:

- Entry pathway involving non-*Vitis* hosts. Based on the current legislation, this pathways are considered:
  - partially regulated because the non-*Vitis* host(s) are regulated, but the legislation does not explicitly mention the considered viruses (BlVS, BLMoV, GRBV) or because of the wide range of regulated and unregulated hosts in the existing legislation (PRMV, TRSV, ToRSV);
  - possibly open for AGVd, GAV, GARSV, GINV, GDeV, GFabV, GGVA, GV-Sat, GSV, GTRV, GVCV, GVS, SGEV, SGLV, TFDaV, WVV-1 (other natural hosts may exist and be unregulated)
  - not a pathway for GYSVd-2, GCV-1, GEEV, GLRaV-7, GLRaV-13, GVE, GVI, GVJ (because no other natural hosts are known).
- Entry pathway involving viruliferous vectors. This pathway mainly refers to:
  - Nematode-transmitted viruses, the vector of which is known (PRMV, TRSV, ToRSV) and viruses potentially transmitted by nematodes but the vector of which, if any, has not been identified yet (BLMoV, GARSV, GDeV, GTRV). According to the current legislation, the viruliferous nematode pathway (independently on the considered species) is identified as partially regulated. Infact, although import of soil and growning media in the EU is banned, nematodes can still enter in the EU with the soil and growing media attached to plants for planting imported from countries in which these vectors are present. Moreover, these viruses may have hosts other than *Vitis* that may be not regulated or only partially regulated;

— Arthropod-transmitted viruses, the vector of which is known (GINV, GRBV, GSV, GVE) and viruses potentially transmitted by insects, but the vector of which, if any, has not been identified yet (BlVS, GFabV, GGVA, GLRaV-13, GVCV, GVI, GVJ, SGEV, SGLV, WVV-1). Since the pathway of plants of *Vitis* is closed, viruliferous insects could only enter if associated with fruits. However, this pathway might be considered minor because the viruliferous insect would have to survive treatments during the growing season and sorting and packing operations before export. In case of polyphagous vectors, their entry via unregulated hosts cannot be excluded, but is associated with high uncertainty. For the other viruses (AGVd, GYSVd-2, GCV-1, GEEV, GLRaV-7), the involvement of a vector in their epidemiology is considered unlikely and the viruliferous pathway therefore closed.

Given the extreme uncertainties on the biology of GAV, GV-Sat and TFDaV, it was not possible for the Panel to ascertain whether the entry pathways of viruliferous vectors exist and might be open for these viruses.

3.4.3. Establishment

Are the pests able to become established in the EU territory? (Yes or No)

Yes, natural hosts of the viruses under categorisation are widespread in the EU and climatic conditions are appopriate for their establishment wherever their hosts may grow in the EU.

Grapevine widely occurs in the EU as commercial crops as well as wild plants. Details on the area of grapes production in individual EU MSs are provided in Figure 1 and Table 13.

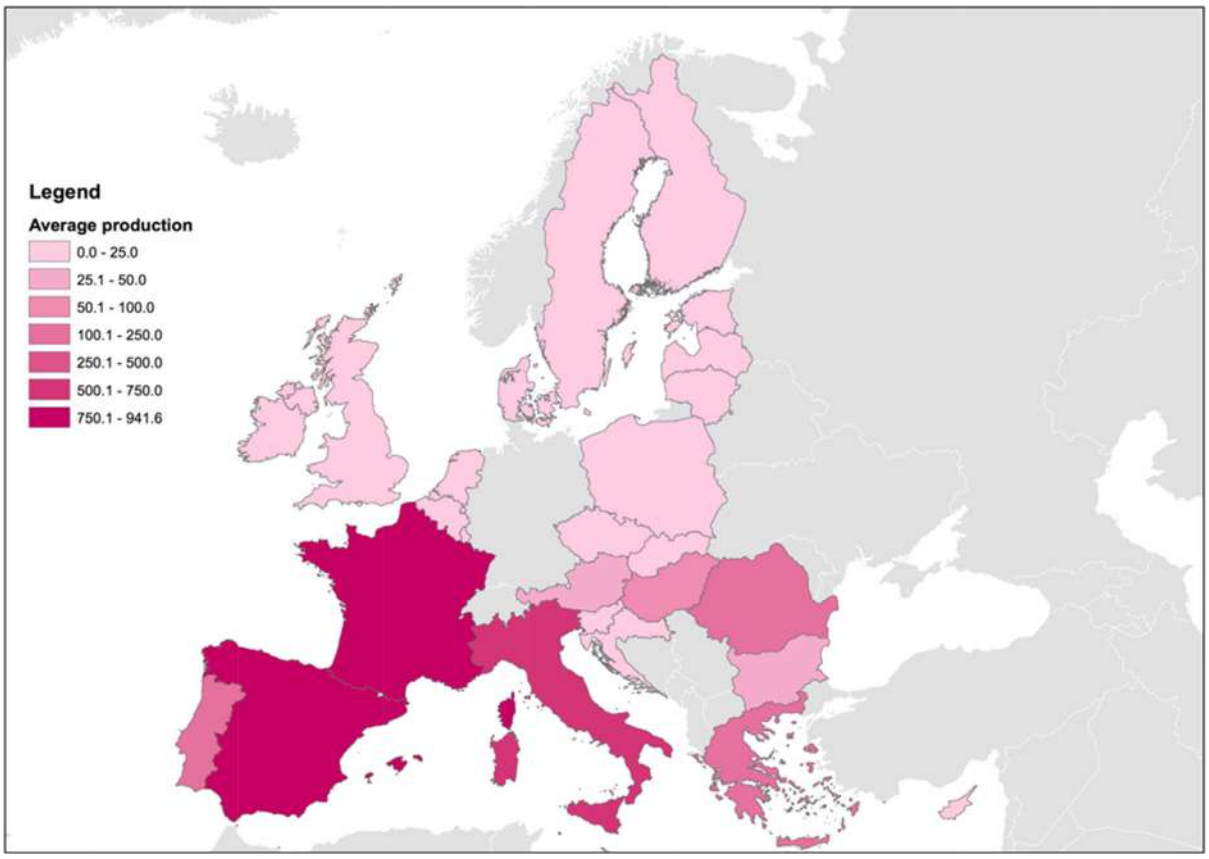

Figure 1: Grape area (cultivation/harvested/production) (1000 ha) of the 5 years 2011–2017, in the EU MSs. Germany has not been included because data were not available (see Table 13). Data for 2018 were not available for all the 28 MSs (date of extraction 05/12/2018), therefore not included

Table 13: Grape Area (cultivation/harvested/production) (1000 ha). Eurostat database, date of extraction 05/12/2018*. na stands for data not available

MS/TIME	2013	2014	2015	2016	2017
Belgium	0.00	0.00	0.18	0.24	0.25
Bulgaria	50.20	31.89	38.71	36.55	34.11
Czechia	15.65	15.78	15.81	15.80	15.81
Denmark	0.00	0.00	0.00	0.00	0.00
Germany (until 1990 former territory of the FRG)	na	na	na	na	na
Estonia	0.00	0.00	0.00	0.00	0.00
Ireland	0.00	0.00	0.00	0.00	0.00
Greece	110.98	110.90	108.53	98.09	101.75
Spain	946.97	947.28	941.06	935.11	937.76
France	760.55	757.34	752.33	751.69	750.46
Croatia	26.10	25.75	25.59	23.40	21.90
Italy	702.11	682.18	678.98	673.76	675.26
Cyprus	5.92	6.16	6.60	6.07	5.93
Latvia	0.00	0.00	0.00	0.00	0.00
Lithuania	0.00	0.00	0.00	0.00	0.00
Luxembourg	1.24	1.25	1.25	1.26	1.26
Hungary	69.32	70.72	72.20	72.20	68.12
Malta	na	na	0.68	0.68	0.68
Netherlands	0.00	0.00	0.15	0.14	0.16
Austria	44.00	44.79	43.78	46.49	48.05
Poland	0.70	0.70	0.60	0.62	0.67
Portugal	179.50	178.99	178.97	179.05	178.84
Romania	176.88	174.63	176.12	174.17	175.32
Slovenia	16.10	16.02	15.71	15.84	15.86
Slovakia	11.96	8.76	8.80	8.71	8.47
Finland	0.00	0.00	0.00	0.00	0.00
Sweden	0.03	0.05	0.05	0.05	0.04
United Kingdom	1.40	2.00	1.80	1.79	1.99

*: Data for 2018 were not available for all the 28 MSs (date of extraction 05/12/2018), therefore not included.

3.4.3.1. Climatic conditions affecting establishment

Except for those affecting the hosts, no eco-climatic constraints exist for the viruses categorised here. Therefore, it is expected that these viruses are able to establish wherever their hosts may live. *Vitis* is largely cultivated in the EU. The Panel therefore considers that climatic conditions will not impair the ability of viruses addressed here to establish in the EU. However, it must be taken into consideration that virus accumulation and distribution within natural hosts, especially in woody ones, are largely dependent on environmental conditions. The same applies to expression of symptom and dynamic of vector populations and virus transmission being affected by climatic conditions, in particular temperature and humidity).

3.4.4. Spread

Are the pests able to spread within the EU territory following establishment? (Yes or No) How?

Yes, all of the categorised viruses can spread through the trade of plants for planting. Some of them are also able to spread by vectors and/or seeds and pollen

RNQPs: Is spread mainly via specific plants for planting, rather than via natural spread or via movement of plant products or other objects?

Yes, all the categorised viruses are spread mainly by plants for planting

Long distance spread of the viruses infecting *Vitis* categorised here is mainly due to human activities (e.g. movement of plant for planting). Some of these viruses have also natural spread mediated by vectors that are mainly involved in short distance movement of the pests.

3.4.4.1. Vectors and their distribution in the EU (if applicable)

No vector is known for many of the viruses categorised here (Table 4). For some of them (AGVd, GYSVd-2, GCV-1, GEEV, GLRaV-7), the existence of vectors is not known and the analogy to related viruses would suggest that there are no potential virus vectors.

In the cases of BlVS, GFabV, GGVA, GLRaV-13, GVCV, GVI, GVJ, SGEV, SGLV, WVV-1, the transmission biology of related viruses would deem possible the existence of insect vector(s) while particular vector species have not been identified (Table 4).

For PRMV, TRSV and ToRSV, transmission by existing nematode vectors is proven (EFSA PLH Panel, 2018a) while for BLMoV, GARSV, GDeV, GTRV, assumptions can only be made on the basis of known transmission mechanisms of related viruses.

Nematode species *Longidorus diadecturus* (Figure 2), *X. americanum* sensu stricto, *Xiphinema americanum* sensu lato (i.e. *X. bricolense*, *X. californicum*, *X. inaequale, X. tarjanense*) transmitting TRSV, ToRSV and/or PRMV have not been recorded in the EU. One (*X. intermedium*) has been reported in Portugal (Fauna Europea database), but without any reference to a specific publication. *X. rivesi* has been reported in six EU MSs [France, Germany, Italy, Portugal, Slovenia, Spain, [Figure 3; (EFSA PLH Panel, 2018a)]. Although under experimental condition, the ability of EU populations of *X. rivesi* to transmit ToRSV and TRSV has been demonstrated, they have never been associated with the spread of the corresponding viral diseases under field condition in the EU (EFSA PLH Panel, 2018a). *L. elongatus*, which can be a vector of PRMV, is widespread in Europe (Figure 4).

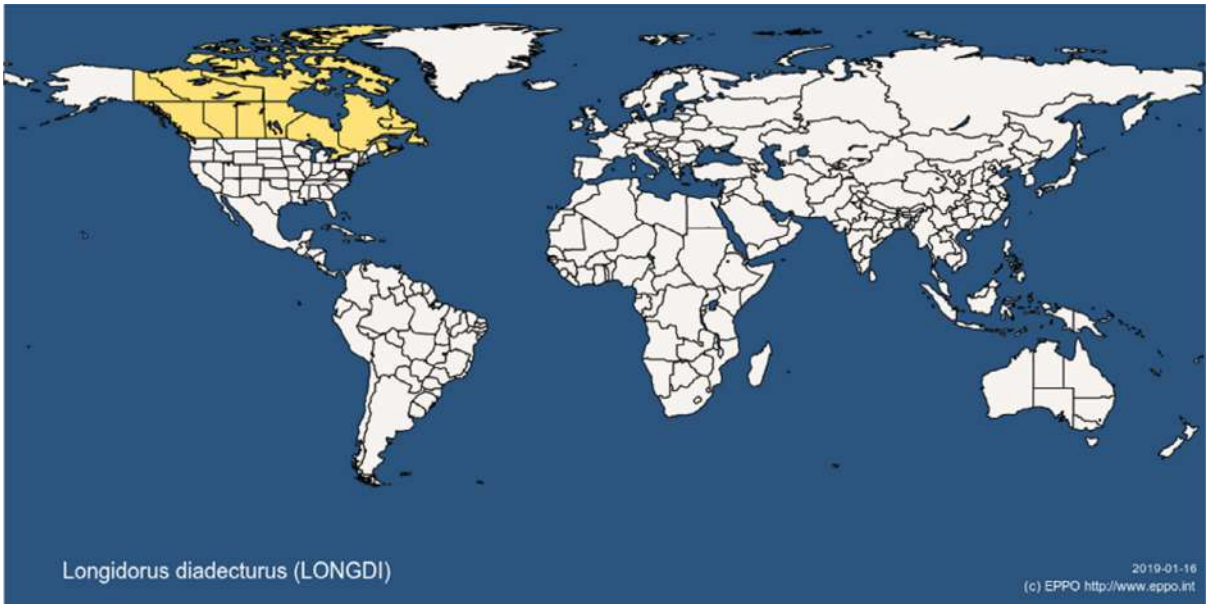

Figure 2: Global distribution map for *Longidorus diadecturus* (extracted from the EPPO Global Database accessed on 16 January 2019)

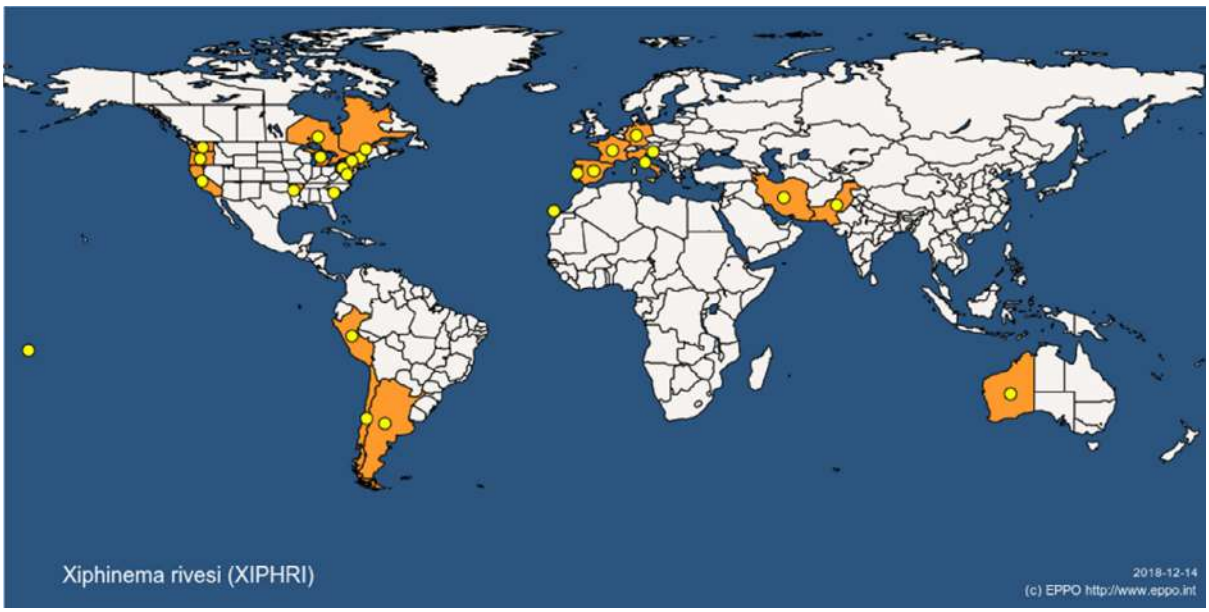

Figure 3: Global distribution map for *Xiphinema rivesi* (extracted from the EPPO Global Database accessed on 14 December 2018). Colour code: Yellow and orange indicate reported presence of the pest

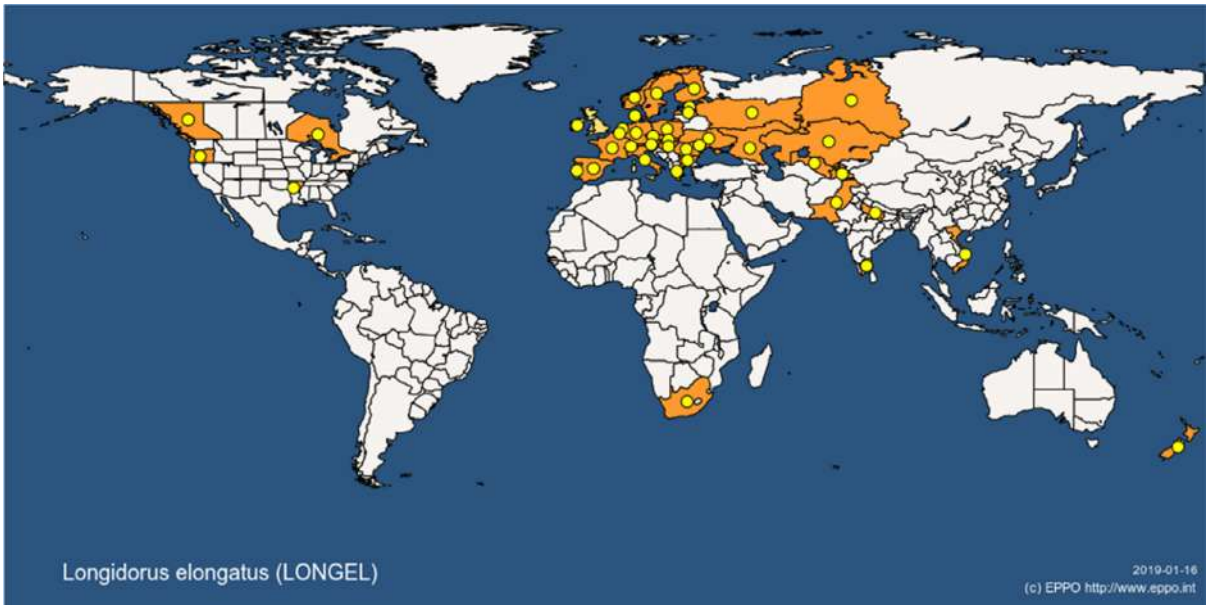

Figure 4: Global distribution map for *Longidorus elongatus* (extracted from the EPPO Global Database accessed on 16 January 2019). Colour code: Yellow and orange indicate reported presence of the pest

In the specific case of GAV, GV-Sat, TFDaV, GVS, the absence of any information or of closely related agents on which to base an assessment prevented the Panel from reaching any conclusion on the possible existence of vector(s).

GINV is transmitted by *Colomerus vitis* (Kunugi et al., 2000), an eriophyid mite widespread in EU MSs (CABI; Figure 5). GVE is transmitted by *Pseudococcus comstocki* (Nakaune et al., 2008), a mealybug that has been reported in 2005 from Italy (Pellizzari et al., 2005), then from France (Kreiter and Germain, 2005) and from Greece (Szita et al., 2017) (Figure 6). The grablovirus GRBV has been shown to be transmitted by *Spissistilus festinus* (Bahder et al., 2016a), a treehopper native to North America but so far not present in EU MSs (Figure 7). Evidence have been provided that GSV can be transmitted by *Arboridia apicalis* (Hatamoto et al., 1984; Namba et al., 1986; Frison and Ikin, 1991), a

leafhopper not known to be present in the EU. Therefore, while GINV and, to a lesser extent, GVE could naturally spread after entering the EU by competent vectors already present, in the case of GRBV and GSV, natural vector-mediated spread is not expected to occur due to the lack of an appropriate vector. However, whether other vector species already present in the EU may contribute to the natural spread of these viruses is unknown.

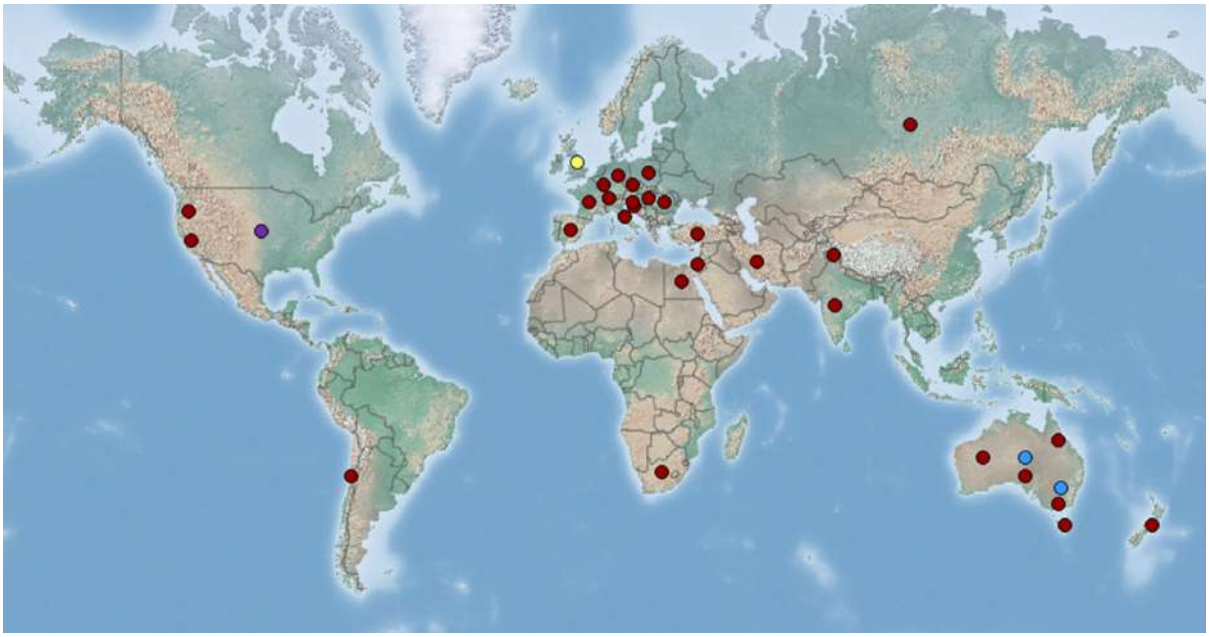

Figure 5: Global distribution map for *Colomerus vitis* (extracted from the CABI crop compendium accessed on 16 January 2019)

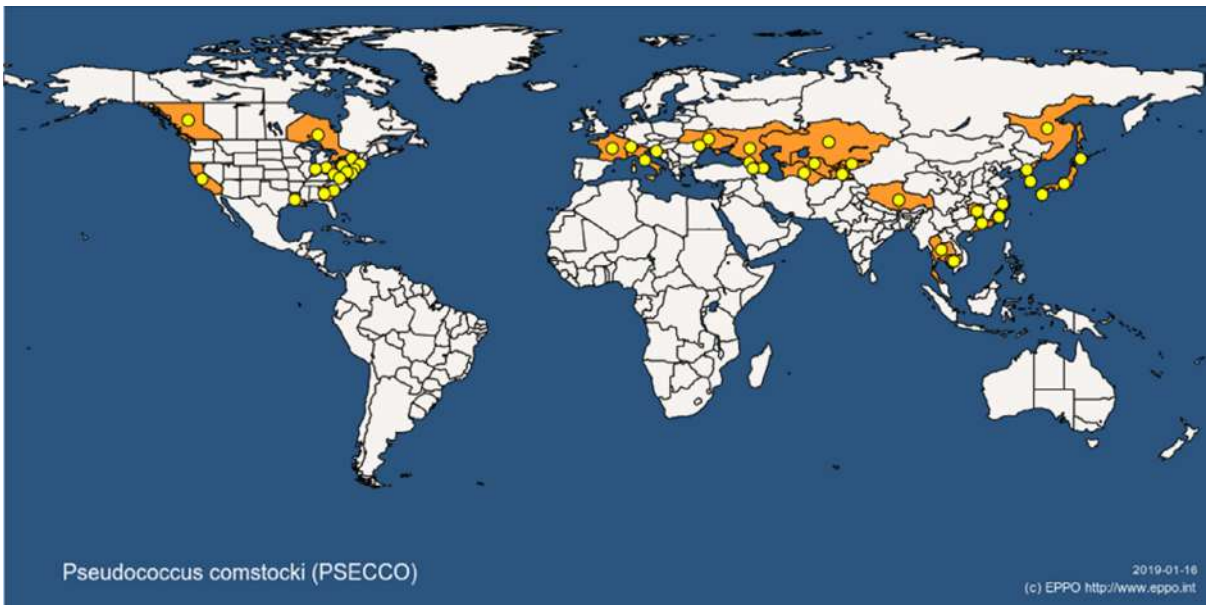

Figure 6: Global distribution map for *Pseudococcus comstocki* (extracted from the EPPO Global Database accessed on 16 January 2019). Colour code: Yellow and orange indicate reported presence of the pest

Figure 7: Global distribution map for *Spissistilus festinus* (extracted from the CABI crop compendium accessed on 16 January 2019)

3.5. Impacts

Would the pests' introduction have an economic or environmental impact on the EU territory?

Yes, for GYSVd-2, BLMoV, GAV, GARSV, GINV, GDeV, GFabV, GRBV, GSV, GTRV, GVCV, PRMV, TFDaV, TRSV, ToRSV which may all induce severe disease in economically relevant crops.

No, for AGVd, GCV-1, GEEV, WVV-1, since none of them has so far been associated clearly with symptomatic infections in grapevine or in other hosts.

For BlVS, GGVA, GLRaV-7 GLRaV-13, GV-Sat, GVE, GVI, GVJ, GVS, SGEV, SGLV the Panel was **unable to come to a conclusion** because of lack of conclusive data on the association with symptoms.

RNQPs: Does the presence of the pests on plants for planting have an economic impact, as regards the intended use of those plants for planting?[4]

Yes, for GYSVd-2, BLMoV, GAV, GARSV, GINV, GDeV, GFabV, GRBV, GSV, GTRV, GVCV, PRMV, TFDaV, TRSV, ToRSV. Given the severity of the symptoms they may cause in *Vitis* and/or other hosts (e.g.: *Malus, Pyrus, Prunus, Rubus* or *Vaccinium*), their presence in plants for planting would severely impact their intended use.

No, for AGVd, GCV-1, GEEV, WVV-1. In the absence of a clear link to a symptomatology, it is unclear whether the presence of these agents in plants for planting would impact their intended use.

For viruses such as BlVS, GGVA, GLRaV-7 GLRaV-13, GV-Sat, GVE, GVI, GVJ, GVS, SGEV, SGLV the Panel was **unable to come to a conclusion** because of lack of data on the association with symptoms.

Mixed infection by several viruses is very common in grapevine, making a straightforward association between a putative causal agent and a symptom/syndrome often extremely difficult. This creates uncertainty on the specific contribution of a particular virus to a particular disease. However, the close/constant association of an infectious agent with a specific disease allows considering it as a harmful organism, with of course some level of uncertainty.

Many viruses categorised here (GYSVd-2, BLMoV, GAV, GARSV, GINV, GDeV, GFabV, GRBV, GSV, GTRV, GVCV, PRMV, TFDaV, TRSV, ToRSV) cause symptoms in *Vitis*, thus impacting fruit yield and/or quality. Some of them [BLMoV, PRMV, TFDaV, TRSV, ToRSV (Table 14)] may also infect and cause diseases in other hosts.

[4] See Section 2.1 on what falls outside EFSA's remit.

On the other hand, the link between some of the other categorised viruses and symptoms is unsubstantiated. This is mostly true for recently discovered agents for which very little information is available and which were described from symptomless plants. However, uncertainties may exist on this aspect because for most of these viruses, the susceptibility has not been tested on a range of cultivars of each host species nor has the potential for detrimental synergistic interactions with other viral agents been investigated.

Table 14: Expected impact on the categorised viruses EU territory, with the associated reasoning and uncertainties

VIRUS/ VIROID name	Would the pests' introduction have an economic or environmental impact on the EU territory?	Reasoning and uncertainties with relevant references	RNQPs: Does the presence of the pest on plants for planting have an economic impact, as regards the intended use of those plants for planting?
Australian grapevine viroid (AGVd)	No	AGVd is not known to induce any discernible symptoms in grapevine (Gambino et al., 2014)	No
Grapevine yellow speckle viroid 2 (GYSVd-2)	Yes, but the extent of damage is uncertain under EU conditions	GYSVd-2 has been associated with symptoms of yellow speckle, which are ephemeral and are elicited especially under sun exposure and high temperature. GYSV-2 in association with grapevine fanleaf virus (a virus widespread in the EU) may cause a vein-banding disease (Di Serio et al., 2017a). No data on the economic significance of this viroid under EU conditions are available (Habili, 2017)	Yes, but the extent of damage is uncertain under EU conditions
Blackberry virus S (BlVS)	Unable to conclude because of lack of information	The virus was detected in blackberry plants showing blackberry yellow vein disease (BYVD) symptoms, i.e. vein yellowing or feathering, leaf mottling, oak leaf and ringspots, resulting in decline and possibly plant death. However, a number of viruses tentatively associated with BYVD occur in mixed infections in blackberry (Martin et al., 2013). Therefore, the association of BlVS with BYVD remains to be established. *Vitis* is the only non-blackberry host known so far for BlVS and no information on its association with symptoms in *Vitis* is available (Sabanadzovic and Abou Ghanem-Sabanadzovic, 2012)	Unable to conclude because of lack of information
Blueberry leaf mottle virus (BLMoV)	Yes, in both *Vaccinium* sp. and *Vitis* sp.	In infected *Vaccinium corymbosum* plants, depending on the cultivar, leaves show mottling and malformations and the uprights (vertical branches) of the bush are killed, or otherwise, the bushes are stunted, show shortened internodes and rosetting of the leaves (EPPO, 2019). Infections are latent in *V. vinifera* grapes; in *V. labrusca* cv. Concord, BLMoV causes fanleaf-like symptoms on leaves and canes, bud burst delay and poor fruit setting (Mannini and Digiaro, 2017)	Yes, in both *Vaccinium* sp. and *Vitis* sp.
Grapevine Ajinashika virus (GAV)	Yes	Symptoms are not visible on the leaves of infected *Vitis* cv. Koshu plants, but berries are pale-coloured and have a low sugar content (Martelli, 2014). Uncertainty exist on whether similar or different symptoms can be elicited on any other grapevine cultivar, including those grown in the EU and the overall impact due to the lack of knowledge on the natural transmission mechanism	Yes

VIRUS/ VIROID name	Would the pests' introduction have an economic or environmental impact on the EU territory?	Reasoning and uncertainties with relevant references	RNQPs: Does the presence of the pest on plants for planting have an economic impact, as regards the intended use of those plants for planting?
Grapevine Anatolian ringspot virus (GARSV)	Yes	Virus recognized as the possible agent of infectious degeneration/decline associated with mild fanleaf-like symptoms (Digiaro et al., 2017)	Yes
Grapevine berry inner necrosis virus (GINV)	Yes	Symptoms, depending on the *Vitis* species and cultivar, are low vigour, delayed bud break, short internodes and internal browning of the shoots; chlorotic mottling, rings and line patterns on the leaves; delay of ripening and small berries with internal necrosis and external discolorations of the bunches (Martelli, 2014)	Yes
Grapevine cryptic virus 1(GCV-1)	No	Virus described from symptomless plants. No *Partitiviridae* member has been associated so far with symptoms in plants (Boccardo et al., 1987; Roossinck, 2010)	No
Grapevine deformation virus (GDeV)	Yes	The virus causes fanleaf-like symptoms on grapevine and is recognised as a possible agent of infectious degeneration/decline (Digiaro et al., 2017)	Yes
Grapevine endophyte endornavirus (GEEV)	No	Virus recently described by HTS, but whether it is a plant or a fungal virus has not been ascertained (Espach et al., 2012). No information is available on the association of the virus with symptoms in grapevine, but endornaviruses are generally non-pathogenic in plants (Fukuhara and Gibbs, 2012)	No
Grapevine fabavirus (GFabV)	Yes	Virus recently discovered by HTS (Al Rwahnih et al., 2016) and shown to cause chlorotic mottling and leaf deformation in *Vitis riparia x Vitis labrusca* (Beta grapevine) (Fan et al., 2017b). The virus effect on other *Vitis* cultivars is unknown	Yes
Grapevine geminivirus A(GGVA)	Unable to conclude because of lack of information	Virus discovered by HTS in plants exhibiting chlorotic ringspot symptoms (Al Rwahnih et al., 2017a), but the association of GGVA with this symptom was no further investigated. GGVA was found in diverse *Vitis* spp. in Korea (Jo et al., 2018) and China (Fan et al., 2017a), most of which did not show disease symptoms. Uncertainty exists on the potential impact of this virus	Unable to conclude because of lack of information
Grapevine leafroll-associated virus 7 (GLRaV-7)	Unable to conclude because of lack of information	The virus was detected in association with typical leafroll symptoms. However, symptoms induced by GLRaV-7 alone are uncertain because it has always been found in mixed infections with GLRaV-1 or -3 which cause leafroll symptoms in single infections (Al Rwahnih et al., 2017b; Burger et al., 2017; Naidu, 2017)	Unable to conclude because of lack of information
Grapevine leafroll-associated virus 13 (GLRaV-13)	Unable to conclude because of lack of information	The virus was detected in association with typical leafroll symptoms. However, symptoms induced by GLRaV-13 alone are uncertain because it has always been found in mixed infections with GLRaV-1 or -3 which cause leafroll symptoms in single infections (Ito and Nakaune, 2016)	Unable to conclude because of lack of information

VIRUS/ VIROID name	Would the pests' introduction have an economic or environmental impact on the EU territory?	Reasoning and uncertainties with relevant references	RNQPs: Does the presence of the pest on plants for planting have an economic impact, as regards the intended use of those plants for planting?
Grapevine red blotch virus (GRBV)	Yes	Virus symptoms reported on some red-berried cultivars consist of red blotches appearing early in the growing season, which later coalesce covering most of the leaf blade which turns reddish. In white-berried cultivars, symptoms consist of chlorotic areas that turn necrotic over time. A reduction of the berry sugar and anthocyanin contents was also observed. Symptom severity varies with the cultivar, the growing season and vineyard location (Cieniewicz et al., 2017)	Yes
Grapevine satellite virus (GV-Sat)	Unable to conclude because of lack of information	This satellite virus was identified in association with several other viruses; thus, it was not possible to draw conclusions on symptoms elicited (Al Rwahnih et al., 2013; Candresse et al., 2017)	Unable to conclude because of lack of information
Grapevine stunt virus (GSV)	Yes	The disease is limited to a single *V. vinifera* cultivar (Campbell Early). Symptoms appear as small and curled leaves, short internodes, undersized inflorescences and fewer bunches. Spring vegetation is delayed, but summer vegetation is normal (Martelli, 2014). There is uncertainty whether symptoms will be observed in a range of European grapevine varieties	Yes
Grapevine Tunisian ringspot virus (GTRV)	Yes	Virus recognised as the possible causal agent of infection degeneration/decline. Little information is available on symptoms, which include mild fanleaf-like (Digiaro et al., 2017)	Yes
Grapevine vein clearing virus (GVCV)	Yes	Main symptoms consist of a translucent clearing of secondary and tertiary veins on young leaves. They vary depending on the cultivar, i.e. deformation and crinkling of the leaves in cvs Chardonnay and Chardonel; vein clearing on young leaves and mosaic and mottle on mature leaves of cv. Vidal Blanc; extensive vein clearing in cvs Cabernet Sauvignon and Cabernet Franc. Vines are stunted and berries are discolored and deformed. The disease is expanding, as well as its economic impact in USA (Qiu and Schoelz, 2017)	Yes
Grapevine virus E (GVE)	Unable to conclude because of lack of information	The virus was detected in vines apparently symptomless or showing stem pitting-like symptoms (Nakaune et al., 2008). There is no evidence for a relationship between GVE and symptomatology (Martelli, 2014)	Unable to conclude because of lack of information
Grapevine virus I (GVI)	Unable to conclude because of lack of information	The virus was recently identified by HTS in New Zealand in *V. vinifera* cv. Chardonnay, but no information on the symptomatology is available (Blouin et al., 2018)	Unable to conclude because of lack of information
Grapevine virus J (GVJ)	Unable to conclude because of lack of information	The virus was recently identified by HTS in a symptomless *V. vinifera* cv. Kizil Sapak in Turkey (Diaz-Lara et al., 2018)	Unable to conclude because of lack of information

VIRUS/ VIROID name	Would the pests' introduction have an economic or environmental impact on the EU territory?	Reasoning and uncertainties with relevant references	RNQPs: Does the presence of the pest on plants for planting have an economic impact, as regards the intended use of those plants for planting?
Grapevine virus S (GVS)	Unable to conclude because of lack of information	The existence of the virus in the USA is supported only by two partial genomic sequences deposited in GenBank (JX513898 and JX513899). No information is available on how those sequences were obtained and on the disease status of the grapevine from which were obtained	Unable to conclude because of lack of information
Peach rosette mosaic virus (PRMV)	Yes	The virus is associated with plant decline and in cv. Concord it causes delayed bud burst, leaf malformation and mottling, poor fruit set and plant death. Berry taste is also affected (Mannini and Digiaro, 2017). The virus has an economic impact depending on the cultivar, with a reduction in growth and yield (up to 60% and 40%, respectively) (Mannini and Digiaro, 2017). In *Prunus persica,* PRMV causes delayed bud break, leaf mosaic and rosetting of the shoots, which are stunted and show a strong yield reduction. In *P. domestica,* the virus causes shoot rosetting, whereas leaves are dwarf-thickened and strap-shaped (Martelli and Uyemoto, 2011)	Yes
Summer grape enamovirus (SGEV)	Unable to conclude because of lack of information	Surveyed plants exhibit downward rolling and discoloration of the leaves. Because these symptoms were found in plants infected also by a number of different viruses (Fagundes Silva et al., 2017), the observed symptomatology cannot be attributed to this virus with certainty	Unable to conclude because of lack of information
Summer grape latent virus (SGLV)	Unable to conclude because of lack of information	The virus is latent in *V. aestivalis* (Sabanadzovic and Abou Ghanem-Sabanadzovic, 2012). No other reports on this virus are available	Unable to conclude because of lack of information
Temperate fruit decay-associated virus (TFDaV)	Yes	The virus causes shrinkage, reddening or red blistering of grapevine leaves, and growth reduction in apple and pear following inoculation (Basso et al., 2015). Lack of information on possible vector(s) does not make it feasible to draw conclusions on possible natural spread in the EU	Yes
Tobacco ringspot virus(TRSV)	Yes	In the USA, TRSV causes significant disease in soybeans (*Glycine max*), tobacco (*Nicotiana tabacum*), *Vaccinium* spp. (especially *V. corymbosum*), and cucurbits. Infected grapevines show decline, shortened internodes, small and distorted leaves (Rowhani et al., 2017) and decreased berry yield (EPPO, 2001). Foliar symptoms, i.e. chlorotic spots and necrotic rings, are induced in stone fruit trees (Martelli and Uyemoto, 2011). No uncertainty on the impact on individual plants	Yes

VIRUS/ VIROID name	Would the pests' introduction have an economic or environmental impact on the EU territory?	Reasoning and uncertainties with relevant references	RNQPs: Does the presence of the pest on plants for planting have an economic impact, as regards the intended use of those plants for planting?
Tomato ringspot virus (ToRSV)	Yes	ToRSV infecting grapevine induces stunted growth, shortened internodes, leaf ringspot and mottling, reduced size of bunches and berry abortion (Yang et al., 1986) as well as thickened, spongy phloem tissue with numerous necrotic pits. In *Malus,* ToRSV causes graft union necrosis, woody pitting and decline, with tree mortality of 90% and 40% for cvs Red delicious and Spartan, respectively (Sanfaçon and Fuchs, 2011). The virus also causes symptoms in stone fruit trees consisting of stem pitting and decline (peach and cherry), yellow bud mosaic (peach and almond), brown line and decline (plum) (Sanfaçon and Fuchs, 2011). ToRSV is one of the most economically important viruses of red raspberry in North America (Stace-Smith and Converse, 1987), with some cultivars showing decline in vigour, stunting and significant fruit yield and quality reduction. Infected *Rubus* plants often die 4 to 5 years after infection (Pinkerton et al., 2008)	Yes
Wild vitis virus 1 (WVV-1)	No	Virus reported so far only from wild *Vitis* spp. not associated with symptoms (Cieniewicz et al., 2018; Perry et al., 2018)	No

3.6. Availability and limits of mitigation measures

Are there measures available to prevent the entry into, establishment within or spread of the pests within the EU such that the risk becomes mitigated?

Yes, measures are already in place (see Section 3.3) and additional measures could be implemented to further regulate the identified pathways or to limit entry, establishment, spread or impact.

RNQPs: Are there measures available to prevent pests presence on plants for planting such that the risk becomes mitigated?

Yes, certification and testing excluding infection. Extension of these measures to the viruses not yet covered by certification may help mitigate the risks associated with infection of plants for planting.

3.6.1. Identification of additional measures

Phytosanitary measures are currently applied to *Vitis* (see Section 3.3). Potential additional measures to mitigate the risk of entry of the viruses categorised here may include:

- extension of phytosanitary measures to specifically include hosts other than *Vitis* for the viruses that have a host range extending to non-*Vitis* species;
- banning import of plants for planting (including pollen) of hosts (e.g. *Malus, Prunus, Cydonia*) from non-EU countries where some viruses (TRSV, ToRSV, PRMV) are present;
- extension of certification schemes and testing requirements to all natural hosts;
- extension of phytosanitary certificate requirements to specifically include hosts other than *Vitis*.

Some of the viruses categorised may also enter in the EU through viruliferous nematodes or arthropods. In agreement with a recent EFSA scientific opinion (EFSA PLH Panel et al., 2018a), an additional measure could be the regulation of soil and growing media attached to imported plants.

3.6.1.1. Additional control measures

Additional control measures to reduce the likelihood of entry, establishment and/or spread of the categorised viruses (Table 15) were selected from a longer list of possible control measures reported in EFSA PLH Panel et al. (2018b). Control measures are organisational measures or procedures that directly affect pest abundance.

Table 15: Selected additional control measures to consider to reduce the likelihood of pest entry, establishment and/or spread of the categorised viruses

Information sheet title (with hyperlink to information sheet if available)	Control measure summary	Risk component (entry/ establishment/ spread/impact)	Viruses/viroids
Growing plants in isolation	Description of possible exclusion conditions that could be implemented to isolate the crop from pests and if applicable relevant vectors. E.g. a dedicated structure such as glass or plastic greenhouses. In the case of viruses categorised here, insect proof greenhouses may isolate plants for planting from vectors. Isolation from natural soil may prevent infestation by viruliferous nematodes	Spread	GINV, GVE, GRBV, and possibly GSV BlVS, GFabV, GGVA, GLRaV-13, GVCV, GVI, GVJ, SGEV, SGLV, WVV-1 (insect-proof greenhouses); PRMV, TRSV, ToRSV and possibly BLMoV, GARSV, GDeFV, GTRV (isolation from soil)
Chemical treatments on consignments or during processing	Use of chemical compounds that may be applied to plants or to plant products after harvest, during process or packaging operations and storage. The treatments addressed in this information sheet are: a) fumigation; b) spraying/dipping pesticides; c) surface disinfectants; d) process additives; e) protective compounds. The point b) and c) could apply to remove viruliferous arthropods that may transmit some of the viruses categorised here.	Entry	GINV, GVE, GRBV, and possibly GSV BlVS, GFabV, GGVA, GLRaV-13, GVCV, GVI, GVJ, SGEV, SGLV, WVV-1
Cleaning and disinfection of facilities, tools and machinery	The physical and chemical cleaning and disinfection of facilities, tools, machinery, transport means, facilities and other accessories (e.g. boxes, pots, pallets, palox, supports, hand tools). The measures addressed in this information sheet are: washing, sweeping and fumigation. These measures may remove viruliferous nematodes	Spread	PRMV, TRSV, ToRSV and possibly BLMoV, GARSV, GDeFV, GTRV
Physical treatments on consignments or during processing	This information sheet deals with the following categories of physical treatments: irradiation/ ionisation; mechanical cleaning (brushing, washing); sorting and grading, and removal of plant parts (e.g. debarking wood). This information sheet does not address: heat and cold treatment (information sheet 1.14); roguing and pruning (information sheet 1.12). Mechanical cleaning and removal of plant parts (e.g. leaves from fruit consignments) may remove viruliferous insects	Entry	GINV, GVE, GRBV, and possibly GSV BlVS, GFabV, GGVA, GLRaV-13, GVCV, GVI, GVJ, SGEV, SGLV, WVV-1

Information sheet title (with hyperlink to information sheet if available)	Control measure summary	Risk component (entry/ establishment/ spread/impact)	Viruses/viroids
Roguing and pruning	Roguing is defined as the removal of infested plants and/or uninfested host plants in a delimited area, whereas pruning is defined as the removal of infested plant parts only, without affecting the viability of the plant. Removal of infected plants is extremely efficient for all categorised viruses, especially for those not transmitted by vectors. Identification of infected plants in the field may be difficult when exclusively based on visual inspection. Pruning is not effective to remove viruses from infected plants	Establishment and Spread	All viruses categorised here
Heat and cold treatments	Controlled temperature treatments aimed to kill or inactivate pests without causing any unacceptable prejudice to the treated material itself. The measures addressed in this information sheet are: autoclaving; steam; hot water; hot air; cold treatment. Hot water treatments to remove viruliferous insects	Entry	GINV, GVE, GRBV, and possibly GSV BlVS, GFabV, GGVA, GLRaV-13, GVCV, GVI, GVJ, SGEV, SGLV, WVV-1
Chemical treatments on crops including reproductive material	Chemical treatments on crops may prevent infestations by viruliferous arthropods	Spread	GINV, GVE, GRBV, and possibly GSV BlVS, GFabV, GGVA, GLRaV-13, GVCV, GVI, GVJ, SGEV, SGLV, WVV-1
Post-entry quarantine and other restrictions of movement in the importing country	This information sheet covers post-entry quarantine of relevant commodities; temporal, spatial and end use restrictions in the importing country for import of relevant commodities; prohibition of import of relevant commodities into the domestic country. Relevant commodities are plants, plant parts and other materials that may carry pests, either as infection, infestation or contamination. Identifying virus-infected plants and banning their movement limit the risks of entry, establishment and spread in the EU	Entry, Establishment and Spread	All viruses categorised here

3.6.1.2. Additional supporting measures

Potential supporting measures are listed in Table 16. They were selected from a list of possible control measures reported in EFSA PLH Panel (2018b). Supporting measures are organisational measures or procedures supporting the choice of appropriate risk reduction options that do not directly affect pest abundance.

Table 16: Selected additional supporting measures to consider to reduce the likelihood of pest entry, and/or spread of the categorised viruses

Information sheet title (with hyperlink to information sheet if available)	Supporting measure summary	Risk component (entry/ establishment/ spread/impact)	Agent(s)
Laboratory testing	Examination, other than visual, to determine if pests are present using official diagnostic protocols. Diagnostic protocols describe the minimum requirements for reliable diagnosis of regulated pests. Laboratory testing may identify viruses independently of the presence of symptoms in the host, even if for some agents proven or official diagnostic protocols are currently not available	Entry and Spread	All viruses categorised here
Certified and approved premises	Mandatory/voluntary certification/approval of premises is a process including a set of procedures and of actions implemented by producers, conditioners and traders contributing to ensure the phytosanitary compliance of consignments. It can be a part of a larger system maintained by a National Plant Protection Organization in order to guarantee the fulfilment of plant health requirements of plants and plant products intended for trade. Key property of certified or approved premises is the traceability of activities and tasks (and their components) inherent the pursued phytosanitary objective. Traceability aims to provide access to all trustful pieces of information that may help to prove the compliance of consignments with phytosanitary requirements of importing countries. Certified and approved premises may guarantee the absence of the harmful viruses from *Vitis* imported for research and/or breeding purposes, and from *Cydonia*, *Malus*, *Prunus, Pyrus* imported as dormant plants for planting from countries allowed to export them in EU MSs	Entry and Spread	All viruses categorised here
Delimitation of Buffer zones	ISPM 5 defines a buffer zone as 'an area surrounding or adjacent to an area officially delimited for phytosanitary purposes in order to minimise the probability of spread of the target pest into or out of the delimited area, and subject to phytosanitary or other control measures, if appropriate' (ISPM 5). The objectives for delimiting a buffer zone can be to prevent spread from the outbreak area and to maintain a pest-free production place, site or area. Buffer zones may contribute to reduce the spread of non-EU viruses of *Vitis* after entry in the EU	Spread	Only for viruses with additional spreading mechanisms besides plants for planting (e.g. viruses transmitted by nematodes and insects)
Phytosanitary certificate and plant passport	An official paper document or its official electronic equivalent, consistent with the model certificates of the IPPC, attesting that a consignment meets phytosanitary import requirements (ISPM 5) a) export certificate (import) b) plant passport (EU internal trade)	Entry and Spread	All viruses categorised here

Information sheet title (with hyperlink to information sheet if available)	Supporting measure summary	Risk component (entry/ establishment/ spread/impact)	Agent(s)
Certification of reproductive material (voluntary/ official)	Certification of reproductive material, when not already implemented, would contribute to reduce the risks associated with entry or spread)	Entry and Spread	All viruses categorised here
Surveillance	Official surveillance may contribute to early detection of the viruses here categorised favouring immediate adoption of control measures if the agents came to establish	Spread	All viruses categorised here

3.6.1.3. Biological or technical factors limiting the feasibility and effectiveness of measures to prevent the entry, establishment and spread of the pest

- Explicitly listing in the legislation the viruses that are only mentioned under the general term of '*Non-European viruses*';
- Latent infection status for some viruses (AGVd, GCV-1, GEEV, WVV-1) and uncertain association with symptoms for others (BlVS, GGVA, GLRaV-7, GLRaV-13, GV-Sat, GVE, GVI, GVJ, GVS, SGEV, SGLV);
- Asymptomatic phase of virus infection renders visual detection unreliable for some viruses;
- Low concentration and uneven distribution in the woody hosts impair reliable detection;
- Absence of proven detection protocol for newly described agents;
- Wide host range for some agents (PRMV, TRSV, ToRSV) and uncertainties on the existence of additional natural hosts for many of the viruses categorised here;
- Difficulties to control vectors for soil-borne viruses (PRMV, TRSV, ToRSV, possibly also BLMoV, GARSV, GDeV, GTRV);
- Lack of information on potential vector(s) for some viruses (BlVS, BLMoV, GARSV, GDeFV GFabV, GGVA, GLRaV-13, GTRV; GVCV, GVI, GVJ, SGEV, SGLV, WVV-1);
- Difficulties to control pollen-mediated transmission for some viruses (BLMoV, TRSV, ToRSV possibly also GAV, GCV-1, GEEV, GTRV, GVS, PRMV).

3.7. Uncertainty

In the present opinion, viruses for which very different levels of information are available have been analysed in parallel, including recently described viruses for which very limited data are reported in the literature. The main areas of uncertainty affecting the present categorisation efforts concern:

- biological information (host range, transmission mechanism) on the categorised viruses, especially those described recently based on HTS data, which is often very limited;
- distribution, both in the EU and outside the EU, of the viruses categorised here, in particular but not only for the recently described ones;
- volume of imported plants for planting, seeds and pollen of other unregulated hosts;
- whether GCV-1 and GEEV are plant-associated mycoviruses or true plant viruses and their host range;
- some of the non-EU viruses categorised here are not explicitly mentioned in the legislation;
- pathogenicity of some agents and, for others, the extent to which they would efficiently spread and have impact under conditions prevailing in the EU;
- reliability of available detection methods, which is mainly due to i) the absence of information on the intraspecific variability of several viruses (especially those recently reported, e.g. TFDaV) and ii) the lack of proven detection protocols.

For each virus categorised here, the specific uncertainties identified during the categorisation process are reported in the conclusion tables below.

4. Conclusions

The Panel's conclusions on pest categorisation of non-EU viruses and viroids of *Vitis* are summarised in Table 17 and are as follows:

GYSVd-2, BLMoV, GAV, GARSV, GINV, GDeV, GFabV, GRBV, GSV, GTRV, GVCV, TFDaV, PRMV, TRSV and ToRSV meet all the criteria evaluated by EFSA to qualify as potential Union QPs. The Panel remarks that GYSVd-2, GLRaV-7, GV-Sat, GVE, ToRSV and TRSV have been reported in one or few MSs, although their distribution is considered restricted.

With the exception of the consequences in the EU territory on which the Panel was unable to conclude due to the limited and/or contrasting available information, BlVS, GGVA, GLRaV-7, GLRaV-13, GV-Sat, GVE, GVI, GVJ, GVS, SGEV, SGLV meet all the other criteria evaluated by EFSA to qualify as potential Union QPs. Additional information regarding the pathogenicity and the potential impact of these viruses are needed for a conclusive assessment.

AGVd, GCV-1, GEEV, WVV-1 do not meet all the criteria evaluated by EFSA to be regarded as potential Union QPs because they are not expected to have potential for consequences in the EU territory.

All the viruses categorised in the current opinion do not meet the criteria evaluated by EFSA to qualify as potential regulated non-quarantine pests (RNQPs) because they are non-EU viruses explicitely mentioned or considered as regulated in Annex IAI of Directive 2000/29/EC. In addition, AGVd, GCV-1, GEEV and WVV-1 are not expected to impact the intended use of plants for planting. Instead, due to the limited and/or contrasting available information, the Panel was unable to conclude whether the presence of BlVS, GGVA, GLRaV-7, GLRaV-13, GV-Sat, GVE, GVI, GVJ, GVS, SGEV, SGLV in plants for planting of *Vitis* may impact their intended use.

The Panel wishes to stress that these conclusions are associated with particularly high uncertainty especially in the case of viruses discovered only recently and for which the information on distribution, biology and epidemiology are extremely scarse. A consequence of this situation is that for particular agents, the results of the categorisation efforts presented here could be very significantly impacted by the future development of novel information.

The Panel conclusions are reported in Table 18. Table 18.4 groups the nepoviruses (BLMoV, PRMV, TRSV and ToRSV) with known vectors while Table 18.6 includes those viruses (GARSV, GDeV and GTRSV) with unknown vector(s). Conclusions on the vitiviruses (GVE, GVI and GVJ) are reported in Table 18.16. The unclassified viruses (GAV, GSV and TFDaV) are also grouped together in table 18.5. Table 18.8 considers together GCV-1 and GEEV because for both is uncertain if they are plant or fungus-infecting viruses.

Table 17: Summary table of Panel's conclusions on pest categorisation of non-EU viruses and viroids of *Vitis*

VIRUS/VIROID	All the criteria evaluated to qualify as potential Union quarantine pest are met	Panel unable to conclude on impact, all the other criteria to qualify as potential Union quarantine pest are met	Criteria evaluated to qualify as potential Union regulated non-quarantine pest	Conclusion table nr
Australian grapevine viroid (AGVd)			No	18.1
Grapevine yellow speckle viroid 2 (GYSVd-2)	**Yes**		No	18.2
Blackberry virus S (BlVS)		**Yes**	No	18.3
Blueberry leaf mottle virus (BLMoV)	**Yes**		No	18.4
Grapevine Ajinashika virus (GAV)	**Yes**		No	18.5
Grapevine Anatolian ringspot virus (GARSV)	**Yes**		No	18.6
Grapevine berry inner necrosis virus (GINV)	**Yes**		No	18.7
Grapevine cryptic virus 1 (GCV-1)			No	18.8
Grapevine deformation virus (GDeV)	**Yes**		No	18.6

VIRUS/VIROID	All the criteria evaluated to qualify as potential Union quarantine pest are met	Panel unable to conclude on impact, all the other criteria to qualify as potential Union quarantine pest are met	Criteria evaluated to qualify as potential Union regulated non-quarantine pest	Conclusion table nr
Grapevine endophyte endornavirus (GEEV)			No	18.8
Grapevine fabavirus (GFabV)	**Yes**		No	18.9
Grapevine geminivirus A (GGVA)		**Yes**	No	18.10
Grapevine leafroll-associated virus 7 (GLRaV-7)		**Yes**	No	18.11
Grapevine leafroll-associated virus 13 (GLRaV-13)		**Yes**	No	18.12
Grapevine red blotch virus (GRBV)	**Yes**		No	18.13
Grapevine satellite virus (GV-Sat)		**Yes**	No	18.14
Grapevine stunt virus (GSV)	**Yes**		No	18.5
Grapevine Tunisian ringspot virus (GTRV)	**Yes**		No	18.6
Grapevine vein-clearing virus (GVCV)	**Yes**		No	18.15
Grapevine virus E (GVE)		**Yes**	No	18.16
Grapevine virus I (GVI)		**Yes**	No	18.16
Grapevine virus J (GVJ)		**Yes**	No	18.16
Grapevine virus S (GVS)		**Yes**	No	18.17
Peach rosette mosaic virus (PRMV)	**Yes**		No	18.4
Summer grape enamovirus (SGEV)		**Yes**	No	18.18
Summer grape latent virus (SGLV)		**Yes**	No	18.19
Temperate fruit decay-associated virus (TFDaV)	**Yes**		No	18.5
Tobacco ringspot virus (TRSV)	**Yes**		No	18.4
Tomato ringspot virus (ToRSV)	**Yes**		No	18.4
Wild vitis virus 1 (WVV-1)			No	18.20

Table 18: The Panel's conclusions on the pest categorisation criteria defined in Regulation (EU) 2016/2031 on protective measures against pests of plants (the number of the relevant sections of the pest categorisation is shown in brackets in the first column).

Table 18.1: AUSTRALIAN GRAPEVINE VIROID (AGVd)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of AGVd is established and diagnostic techniques are available	The identity of AGVd is established and diagnostic techniques are available	No uncertainty

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Absence/presence of the pest in the EU territory (Section 3.2)	AGVd has been reported in one MS (Italy). However, based on field surveys, AGVd presence in Italy can be considered restricted (limited area, few cultivars)	AGVd has been reported in one MS (Italy). However, based on field surveys, AGVd presence in Italy can be considered restricted (limited area, few cultivars).	More widespread and unreported presence in the EU
Regulatory status (Section 3.3)	AGVd can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	AGVd can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	AGVd not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	AGVd is able to enter in the EU. The main pathway *Vitis* plants for planting is closed by existing legislation. A pathway associated with other potential hosts is possibly open. If AGVd were to enter the EU territory, it could become established and spread	Plants for planting constitute the main means of spread for AGVd	- Geographical distribution; - Vector transmission; - Existence of other natural hosts
Potential for consequences in the EU territory (Section 3.5)	Potential consequences are likely nil or very limited since no symptoms in grapevine have been associated with AGVd infection. Therefore, AGVd does not meet this criterion to qualify as a potential Union quarantine pest	The presence of AGVd on plants for planting of grapevine is not expected to impact their intended use. Therefore, AGVd does not meet this criterion to qualify as a potential Union RNQP	
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread in the EU	Certification of planting materials of susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	AGVd does not meet one of the criteria evaluated by EFSA to qualify as a potential Union quarantine pest: it is not known to cause economic or environmental damage	AGVd does not meet two of the criteria evaluated by EFSA to qualify as a potential Union RNQP: 1) it is not present in the EU and can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'; 2) it is not expected to impact the intended use of *Vitis* plants for planting	

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - More wideaspread and unreported presence in the EU; - Biology (host range and vector transmission). Given the very limited information available on this viroid, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.2: GRAPEVINE YELLOW SPECKLE VIROID 2 (GYSVd-2)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GYSVd-2 is established and diagnostic techniques are available	The identity of GYSVd-2 is established and diagnostic techniques are available	No uncertainty
Absence/presence of the pest in the EU territory (Section 3.2)	GYSVd-2 has been reported in one MS (Italy). However, based on field surveys GYSVd-2 presence in Italy can be considered restricted (limited area, few cultivars)	GYSVd-2 has been reported in one MS (Italy). However, based on field surveys GYSVd-2 presence in Italy can be considered restricted (limited area, few cultivars).	More widespread and unreported presence in the EU
Regulatory status (Section 3.3)	GYSVd-2 can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GYSVd-2 can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GYSVd-2 not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GYSVd-2 is able to enter in the EU. The main pathway *Vitis* plants for planting is closed by existing legislation and no other pathway has been identified. Therefore, the potential of GYSVd-2 for entry is considered nil or extremely limited under current legislation. If GYSVd-2 were to enter the EU territory, it could become established and further spread	Plants for planting constitute the main means for spread for GYSVd-2	- Geographical distribution; - Vector transmission; - Existence of other natural hosts
Potential for consequences in the EU territory (Section 3.5)	Introduction and spread of GYSVd-2 in the EU would have a negative impact on *Vitis* spp.	The presence of GYSVd-2 on plants for planting may have an impact on their intended use	Magnitude of the impact of under EU conditions

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of spread into the EU	Certification of planting material for susceptible hosts is, by far, their most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	GYSVd-2 meets all the criteria evaluated by EFSA to qualify as potential Union quarantine pest	GYSVd-2 is a non-EU viroid (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - More widespread and unreported presence in the EU; - Biology (host range and vector transmission); - Magnitude of the impact under EU conditions. Given the very limited information available on this viroid, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.3: BLACKBERRY VIRUS S (BlVS)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of BlVS is established and diagnostic techniques are available	The identity of BlVS is established and diagnostic techniques are available	No uncertainty
Absence/presence of the pest in the EU territory (Section 3.2)	BlVS is not known to be present in the EU	BlVS is not known to be present in the EU and therefore do not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	BlVS can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	BlVS can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	BlVS not explicitly mentioned in Directive 2000/29/EC.

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	BlVS is able to enter in the EU. The pathway of *Vitis* plants for planting is closed by existing legislation, but the pathways of *Rubus* plants for planting is only partially regulated. Other potential pathways (other hosts, vectors) may possibly be open. If BlVS were to enter the EU territory, it could become established and spread.	Plants for planting constitute the main means of spread for BlVS	- Geographical distribution; - Vector transmission; - Existence of other natural hosts
Potential for consequences in the EU territory (Section 3.5)	Due to the limited information, the Panel is unable to conclude on the potential consequences in the EU territory	Because of lack of conclusive information, the Panel is unable to conclude whether the presence of BlVS on *Vitis* plants for planting may impact their intended use	–
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	With the exception of consequences in the EU territory, for which the Panel is unable to conclude (see Section 3.5), BlVS meets all the other criteria evaluated by EFSA to qualify as potential Union quarantine pests	BlVS is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which the Panel was unable to conclude due to the limited information; - Possible unreported presence in the EU; - Biology (host range and vector transmission). Given the very limited information available on this virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.4: BLUEBERRY LEAF MOTTLE VIRUS (BLMoV), PEACH ROSETTE MOSAIC VIRUS (PRMV), TOBACCO RINGSPOT VIRUS (TRSV), TOMATO RINGSPOT VIRUS (ToRSV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of BLMoV, PRMV, TRSV and ToRSV is established and diagnostic techniques are available	The identity of BLMoV, PRMV, TRSV and ToRSV is established and diagnostic techniques are available	No uncertainty
Absence/presence of the pest in the EU territory (Section 3.2)	BLMoV and PRMV are not known to be present in the EU. TRSV and ToRSV have been sporadically and transiently reported from several MSs, but their presence is restricted and/or under eradication.	BLMoV and PRMV are not known to be present in the EU, therefore do not meet this criterion to qualify for RNQPs. TRSV and ToRSV have been sporadically and transiently reported from several MSs in EU, but their presense is restricted and/or under eradication	Possible unreported presence (BLMoV and PRMV) or more significant presence (TRSV or ToRSV) in the EU
Regulatory status (Section 3.3)	BLMoV, PRMV, TRSV and ToRSV are currently regulated in Annex IAI	BLMoV, PRMV, TRSV and ToRSV are currently regulated in Annex IAI	No uncertainty
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	BLMoV, PRMV, TRSV and ToRSV are able to enter or further enter in the EU. The *Vitis* plants for planting pathway are closed by existing legislation, but entry is possible on plants for planting of other hosts, on seeds of herbaceous hosts and with viruliferous nematodes. If these viruses were to enter the EU territory, they could become established and spread	Plants for planting constitute the main means for long distance spread for these viruses	- Geographical distribution; - Existence of other natural hosts for BLMoV; - Vector transmission for BLMoV; - Pollen transmission for PRMV; - Efficiency of natural spread under EU conditions; - Origin and trade volumes of plants for planting of unregulated host species; - Significance of the seed and pollen pathway given the absence of information on the volume of imported seeds and pollen of non-*Vitis* hosts
Potential for consequences in the EU territory (Section 3.5)	Introduction and spread of BLMoV, PRMV, TRSV, and ToRSV would have a negative impact on the EU grapevine fruit industry and on other crops. BLMoV is also associated with symptoms in *Vaccinium corymbosum* plants	The presence of BLMoV, PRMV, TRSV and ToRSV on plants for planting would have a negative impact on their intended use	Magnitude of the impact of BLMoV, PRMV, TRSV and ToRSV under EU conditions
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Conclusion on pest categorisation (Section 4)	BLMoV, PRMV, TRSV and ToRSV meet all the criteria evaluated by EFSA to qualify as potential Union quarantine pests	BLMoV, PRMV, TRSV and ToRSV are non-EU viruses (considered as regulated in Annex IAI of Directive 2000/29/EC), and as such do not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Possible presence (BLMoV and PRMV) or more significant presence (TRSV or ToRSV) in the EU; - Biology (host range, vector or pollen transmission of BLMoV and PRMV, respectively); - Efficiency of natural spread under EU conditions; - Origin and trade volumes of plants for planting, seeds and pollen of unregulated host species; - Significance of the seed and pollen pathway given the absence of information on the volume of imported seeds and pollen of other hosts; - Magnitude of the impact of BLMoV, PRMV, TRSV and ToRSV under EU conditions		

Table 18.5: GRAPEVINE AJINASHIKA VIRUS (GAV), GRAPEVINE STUNT VIRUS (GSV) TEMPERATE FRUIT DECAY-ASSOCIATED VIRUS (TFDaV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity TFDaV is established while GAV and GSV have been shown to be transmissible and produce consistent symptoms. Diagnostic techniques are available for all three agents	The identity TFDaV is established while GAV and GSV have been shown to be transmissible and produce consistent symptoms. Diagnostic techniques are available for all three agents	For TFDaV absence of a proven diagnostic protocol. For GAV and GSV, biological indexing but no molecular detection is available. Uncertainties exist on the reliability of their serological detection
Absence/presence of the pest in the EU territory (Section 3.2)	GAV, GSV and TFDaV are not known to be present in the EU	GAV, GSV and TFDaV are not known to be present in the EU and therefore do not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	GAV, GSV and TFDaV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GAV, GSV and TFDaV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GAV, GSV and TFDaV not explicitly mentioned in Directive 2000/29/EC

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GAV, GSV and TFDaV are able to enter in the EU. The main pathway plants for planting of *Vitis* (and of *Malus* and *Pyrus* for TFDaV), is closed by current legislation. A pathway associated with other potential hosts is possibly open. The vector *Arboridia apicalis* that is not regulated in the EU may be an additional entry pathway for GSV. If GAV, GSV and TFDaV were to enter the EU territory, they could become established and spread	Plants for planting constitute the main means of spread for GAV, GSV and TFDaV	- Geographical distibution; - Virus biology [host range, seed and pollen transmission, and, for GAV and TFDaV, existence of vector(s)]; - For GSV, *A. apicalis,* association with consignments of unregulated plants
Potential for consequences in the EU territory (Section 3.5)	Introduction and spread of GAV, GSV and TFDaV would have a negative impact on the EU grapevine industry	The presence of GAV, GSV and TFDaV on plants for planting would have a negative impact on their intended use	Magnitude of the impact of GAV, GSV and TFDaV under EU conditions
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	GAV, GSV and TFDaV meet all the criteria evaluated by EFSA to qualify as a potential Union quarantine pest	GAV, GSV and TFDaV are non-EU viruses (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such do not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	Due to the absence of close relatives on which to draw some hypotheses, the main knowledge gaps or uncertainties identified concern essentially all aspects of the biology of GAV, GSV and TFDaV, including: - Possible unreported presence in the EU; - Virus biology [host range, seed and pollen transmission, and, for GAV and TFDaV, existence of vector(s)]; - For GSV, *A. apicalis* association with consignments of unregulated plants; - Magnitude of the impact of GAV, GSV and TFDaV under EU conditions. Given the very limited information available on these viruses, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.6: GRAPEVINE ANATOLIAN RINGSPOT VIRUS (GARSV), GRAPEVINE DEFORMATION VIRUS (GDeV), GRAPEVINE TUNISIAN RINGSPOT VIRUS (GTRV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GARSV, GDeV and GTRV is established and diagnostic techniques are available	The identity of GARSV, GDeV and GTRV is established and diagnostic techniques are available	For GTRV biological indexing but no molecular detection is available. Uncertainties exist on the reliability of serological detection for this virus
Absence/presence of the pest in the EU territory (Section 3.2)	GARSV, GDeV and GTRV are not known to be present in the EU	GARSV, GDeV and GTRV are not known to be present in the EU and therefore do not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	GARSV, GDeV and GTRV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GARSV, GDeV and GTRV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GARSV, GDeV and GTRV not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GARSV, GDeV and GTRV are able to enter in the EU. The main pathway *Vitis* plants for planting is closed by existing legislation. Other potential pathways (other hosts, their seeds, vectors) may possibly be open for all these viruses. If GARSV, GDeV and GTRV were to enter the EU territory, they could become established and spread	Plants for planting constitute the main means of long distance spread for GARSV, GDeV and GTRV	- Geographical distribution; - Existence of other host species; - Vector transmission
Potential for consequences in the EU territory (Section 3.5)	Introduction and spread of GARSV, GDeV and GTRV would have a negative impact on the EU *Vitis* industry	The presence of GARSV, GDeV and GTRV on plants for planting would have a negative impact on their intended use	Magnitude of the impact of GARSV, GDeV and GTRV under EU conditions
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	GARSV, GDeV and GTRV meet all the criteria evaluated by EFSA to qualify as a potential Union quarantine pest	GARSV, GDeV and GTRV are non-EU viruses (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such do not meet the EFSA criterion to qualify as a potential Union RNQP	

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Aspects of assessment to focus on/ scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Possible unreported presence in the EU; - Biology (host range and vector transmission); - Magnitude of the impact of GARSV, GDeV and GTRV under EU conditions. Given the very limited information available on these viruses, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.7: GRAPEVINE BERRY INNER NECROSIS VIRUS (GINV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GINV is established and diagnostic techniques are available	The identity of GINV is established and diagnostic techniques are available	No uncertainty
Absence/presence of the pest in the EU territory (Section 3.2)	GINV is not known to be present in the EU	GINV is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	GINV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GINV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GINV not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GINV is able to enter in the EU. The *Vitis* plant for planting pathway is closed. The pathways of other potential hosts may possibly be open. The pathway associated with viruliferous *Colomerus vitis* vectors is not regulated but considered unlikely due to unlikely association with imported consignments. If GINV were to enter the EU territory, it could become established and spread	Plants for planting constitute the main means for long distance spread for GINV	- Geographical distribution; - Existence of other host species; - *C. vitis* association with consignments of fruits and other hosts; - Efficiency of natural spread of GINV under EU conditions
Potential for consequences in the EU territory (Section 3.5)	Introduction and spread of GINV would have a negative impact on the EU *Vitis* industry	The presence of GINV on plants for planting would have a negative impact on their intended use	Magnitude of the impact of GINV under EU conditions

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	GINV meets all the criteria evaluated by EFSA to be regarded as a potential Union quarantine pest	GINV is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/ scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Possible unreported presence in the EU; - Biology (host range); - Efficiency of natural spread under EU conditions; - *C. vitis* association with consignments of fruits and other hosts; - Magnitude of the impact of GINV under EU conditions. Given the very limited information available on this virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.8: GRAPEVINE CRYPTIC VIRUS 1 (GCV-1) and GRAPEVINE ENDOPHYTE ENDORNAVIRUS (GEEV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GCV-1 and GEEV is established and diagnostic techniques are available	The identity of GCV-1 and GEEV is established and diagnostic techniques are available	Whether GCV-1 and GEEV are grapevine viruses or mycoviruses associated with a *Vitis*-colonising fungus remains unclear. Absence of a proven diagnostic protocol
Absence/presence of the pest in the EU territory (Section 3.2)	GCV-1 and GEEV are not known to be present in the EU	GCV-1 and GEEV are not known to be present in the EU and therefore do not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	GCV-1 and GEEV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GCV-1 and GEEV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GCV-1 and GEEV not explicitly mentioned in Directive 2000/29/EC

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GCV-1 and GEEV are able to enter in the EU. The only identified pathway *Vitis* plants for planting is closed by existing legislation. If GCV-1 and GEEV were to enter in the EU territory, they could become established and spread	Plants for planting constitute the main means of spread for GCV-1 and GEEV	- Geographical distribution; - Seed and pollen transmission; - Uncertainty whether GCV-1 and GEEV are fungal or plant viruses
Potential for consequences in the EU territory (Section 3.5)	Potential consequences are likely nil or very limited since no symptoms are known to be associated with GCV-1 and GEEV infection. Therefore, GCV-1 and GEEV do not meet this criterion to qualify as potential Union quarantine pathogens	The presence of GCV-1 or GEEV on plants for planting is not expected to have impact their intended use. Therefore, GCV-1 and GEEV do not meet this criterion to qualify as potential RNQPs	
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	GCV-1 and GEEV do not meet one of the criteria evaluated by EFSA to be regarded as potential Union quarantine pests: they are not known to have negative impact on grapevine industry	GCV-1 and GEEV do not meet two of the criteria evaluated by EFSA to qualify as a potential Union RNQP: 1) they are not present in the EU and can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'; 2) they are not expected to impact the intended use of *Vitis* plants for planting	
Aspects of assessment to focus on/ scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which the Panel was unable to conclude due to the limited information; - Biology (uncertainty whether GCV-1 and GEEV are fungal or plant viruses, seed and pollen transmission); - Possible unreported presence in the EU. Given the very limited available information on these very recently described viruses, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.9: GRAPEVINE FABAVIRUS (GFabV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GFabV is established and diagnostic techniques are available	The identity of GFabV is established and diagnostic techniques are available	Absence of a proven diagnostic protocol
Absence/ presence of the pest in the EU territory (Section 3.2)	GFabV is not known to be present in the EU	GFabV is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	GFabV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GFabV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GFabV not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GFabV is able to enter in the EU. The pathway *Vitis* plants for planting is closed by existing legislation. Other potential pathways (other hosts and vectors) may possibly be open. If GFabV were to enter the EU territory, it could become established and spread	Plants for planting constitute the main means for spread for GFabV	- Geographical distribution; - Vector transmission; - Existence of other natural hosts; - Efficiency of natural spread under EU conditions
Potential for consequences in the EU territory (Section 3.5)	Introduction and spread of GFabV in the EU would have a negative impact on *Vitis*	The presence of GFabV on plants for planting of *Vitis* is expected to impact their intended use.	Magnitude of the impact of GFabV under EU conditions
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	GFabV meets all the criteria evaluated by EFSA to qualify as potential Union quarantine pest	GFabV is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/ scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Possible unreported presence in the EU; - Biology (host range and vector transmission); - Efficiency of natural spread under EU conditions; - Magnitude of the impact of GFabV under EU conditions. Given the very limited available information on this very recently described virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.10: GRAPEVINE GEMINIVIRUS A (GGVA)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GGVA is established and diagnostic techniques are available	The identity of GGVA is established and diagnostic techniques are available	No uncertainty
Absence/presence of the pest in the EU territory (Section 3.2)	GGVA is not known to be present in the EU	GGVA is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	GGVA can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GGVA can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GGVA not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GGVA is able to enter in the EU. The *Vitis* plant for planting pathway is closed. Other potential pathways (other hosts, vectors) may possibly be open. If GGVA were to enter the EU territory, it could become established and spread	Plants for planting constitute the main means of spread for GGVA	- Geographical distribution; - Existence of other host species; - Vector transmission; - Efficiency of natural spread under EU conditions
Potential for consequences in the EU territory (Section 3.5)	Due to limited information, the Panel is unable to conclude on the potential consequences in the EU territory	Due to limited information, the Panel is unable to conclude whether the presence of GGVA on *Vitis* plants for planting would impact their intended use	–
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	With the exception of the criterion regarding the potential for consequences in the EU territory, for which the Panel is unable to conclude (see Section 3.5), GGVA meets all the other criteria evaluated by EFSA to qualify as potential Union quarantine pest	GGVA is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which the Panel was unable to conclude due to the limited information; - Possible unreported presence in the EU; - Biology (host range, vector transmission); - Efficiency of natural spread under EU conditions. Given the very limited available information on this very recently described virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.11: GRAPEVINE LEAFROLL-ASSOCIATED VIRUS 7 (GLRaV-7)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GLRaV-7 is established and diagnostic techniques are available	The identity of GLRaV-7 is established and diagnostic techniques are available	No uncertainty
Absence/presence of the pest in the EU territory (Section 3.2)	GLRaV-7 is reported from three MSs, but its presence is considered restricted	GLRaV-7 is reported from three MSs, but its presence is considered restricted	More widespread and unreported presence in the EU
Regulatory status (Section 3.3)	GLRaV-7 can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GLRaV-7 can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GLRaV-7 not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GLRaV-7 is able to enter in the EU. The only identified pathway, *Vitis* plants for planting, is closed by existing legislation. If GLRaV-7 were to further enter the EU territory, it could become established and spread	Plants for planting constitute the main means of spread for GLRaV-7	Geographical distribution
Potential for consequences in the EU territory (Section 3.5)	Due to limited information, the Panel is unable to conclude on the potential consequences in the EU territory	Due to limited information, the Panel is unable to conclude whether the presence of GLRaV-7 on *Vitis* plants for planting would impact their intended use	–
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Conclusion on pest categorisation (Section 4)	With the exception of the criterion regarding the consequences in the EU territory, for which the Panel is unable to conclude (see Section 3.5), GLRaV-7 meets all the other criteria evaluated by EFSA to qualify as potential Union quarantine pest	GLRaV-7 is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which, due to the limited information, the Panel was unable to conclude; - More widespread and unreported presence in the EU. Given the very limited available information on this virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.12: GRAPEVINE LEAFROLL-ASSOCIATED VIRUS 13 (GLRaV-13)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GLRaV-13 is established and diagnostic techniques are available	The identity of GLRaV-13 is established and diagnostic techniques are available	Absence of a proven diagnostic protocol
Absence/presence of the pest in the EU territory (Section 3.2)	GLRaV-13 is not known to be present in the EU	GLRaV-13 is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	GLRaV-13 can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GLRaV-13 can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GLRaV-13 not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GLRaV-13 is able to enter in the EU. The main pathway *Vitis* plants for planting is closed by existing legislation. Other potential pathways (vectors) may possibly be open. If GLRaV-13 were to enter the EU territory, it could become established and spread	Plants for planting constitute the main means of spread for GLRaV-13	- Geographical distribution; - Vector transmission; - Efficiency of natural spread under EU conditions

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Potential for consequences in the EU territory (Section 3.5)	Due to the limited information, the Panel is unable to conclude on the potential consequences in the EU territory	Due to the limited information, the Panel is unable to conclude whether the presence of GLRaV-13 on *Vitis* plants for planting may impact their intended use	–
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	With the exception of the criterion regarding the consequences in the EU territory, for which the Panel is unable to conclude (section 3.5), GLRaV-13 meets all the criteria evaluated by EFSA to qualify as potential Union quarantine pest	GLRaV-13 is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which the Panel was unable to conclude due to the limited information; - Possible unreported presence in the EU; - Biology (vector transmission); - Efficiency of natural spread under EU conditions. Given the very limited available information on this very recently described virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.13: GRAPEVINE RED BLOTCH VIRUS (GRBV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GRBV is established and diagnostic techniques are available	The identity of GRBV is established and diagnostic techniques are available	No uncertainty
Absence/presence of the pest in the EU territory (Section 3.2)	GRBV is not known to be present in the EU	GRBV is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Regulatory status (Section 3.3)	GRBV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GRBV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GRBV not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GRBV is able to enter in the EU. The pathway *Vitis* plants for planting is closed by existing legislation, while the *Rubus* plant for planting pathway is only partially regulated. The vector *Spissistilus festinus* is not regulated by current legislation; therefore, the vector pathway is open. IF GRBV were to enter in the EU territory, it could become established and spread	Plants for planting constitute the main means of spread for GRBV	- Geographical distribution; - Existence of other natural hosts; - Vector transmission - *S. festinus* association with consignments of unregulated plants; - Efficiency of natural spread under EU conditions
Potential for consequences in the EU territory (Section 3.5)	Introduction and spread of GRBV would have a negative impact on the EU *Vitis* industry	The presence of GRBV on plants for planting of grapevine would have a negative impact on their intended use	Magnitude of the impact of GRBV under EU conditions
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	GRBV meets all the criteria evaluated by EFSA to qualify as a potential Union quarantine pest	GRBV is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Possible unreported presence in the EU; - Biology (host range and vector transmission); - Efficiency of natural spread under EU conditions; - *S. festinus* association with consignments of unregulated plants; - Magnitude of the impact of GRBV under EU conditions. Given the very limited available information on this very recently described virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.14: GRAPEVINE SATELLITE VIRUS (GV-Sat)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GV-Sat is established and diagnostic techniques are available	The identity of GV-Sat is established and diagnostic techniques are available	The helper virus of GV-Sat is currently not known. Absence of a proven diagnostic protocol
Absence/presence of the pest in the EU territory (Section 3.2)	GV-Sat has been reported from two MSs (germplasm collection for one of them), but its presence is considered restricted	GV-Sat has been reported from two MSs (germplasm collection for one of them), but its presence is considered restricted	More widespread and unreported presence in the EU
Regulatory status (Section 3.3)	GV-Sat can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GV-Sat can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GV-Sat not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GV-Sat is able to enter in the EU. The main pathway, plants for planting of *Vitis,* is closed by legislation. The pathway of other hosts may possibly be open. Given the lack of information on the identity and biology of its helper virus, the Panel is unable to conclude on the existence of alternative pathways (vectors). If GV-Sat were to enter the EU territory it could become established and spread	Plants for planting constitute the main means for spread for GV-Sat	Uncertainties on biology of the helper virus
Potential for consequences in the EU territory (Section 3.5)	Because of lack of information, the Panel is unable to conclude on the potential consequences in the EU territory	Because of lack of information, the Panel is unable to conclude whether the presence of GV-Sat on *Vitis* plants for planting may impact their intended use	–
Available measures (section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Conclusion on pest categorisation (Section 4)	With the exception of the criterion of having potential for consequences in the EU territory, for which the Panel is unable to conclude (section 3.5), GV-Sat meets all the other criteria evaluated by EFSA to qualify as potential Union quarantine pest	GV-Sat is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	Due to the absence of information on the identity of the helper virus, the main knowledge gaps or uncertainties identified concern essentially: - Potential consequences in the EU territory, on which the Panel was unable to conclude due to the limited information; - More widespread and unreported presence in the EU; - Uncertainties on biology of the helper virus. Given the very limited available on this very recently described agent, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.15: GRAPEVINE VEIN-CLEARING VIRUS (GVCV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GVCV is established and diagnostic techniques are available	The identity of GVCV is established and diagnostic techniques are available	Effect of high genetic diversity on reliability of detection methods
Absence/presence of the pest in the EU territory (Section 3.2)	GVCV is not known to be present in the EU	GVCV is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (section 3.3)	GVCV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GVCV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GVCV not explicitly mentioned in Directive 2000/29/EC

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GVCV is able to enter in the EU. The pathway of *Vitis* plants for planting is closed by existing legislation. Other potential pathways (other hosts, vectors) may possibly be open. If GVCV were to enter the EU territory, it could become established and spread	Plants for planting constitute the main means of spread for GVCV	- Geographical distribution; - Vector transmission; - Existence of other natural hosts; - Efficiency of natural spread of GVCV under EU conditions
Potential for consequences in the EU territory (Section 3.5)	Introduction and spread of GVCV would have a negative impact on the EU grapevine industry	The presence of GVCV on plants for planting would have a negative impact on their intended use	Magnitude of the impact of GVCV under EU conditions
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	GVCV meets all the criteria evaluated by EFSA to qualify as a potential Union quarantine pest	GVCV is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Effect of high genetic diversity on reliability of detection methods; - Possible unreported presence in the EU; - Biology (host range and vector transmission); - Efficiency of natural spread under EU conditions); - Magnitude of the impact of GVCV under EU conditions. Given the very limited available information on this recently described virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.16: GRAPEVINE VIRUS E (GVE), GRAPEVINE VIRUS I (GVI), GRAPEVINE VIRUS J (GVJ)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GVE, GVI and GVJ is established and diagnostic techniques are available	The identity of GVE, GVI and GVJ is established and diagnostic techniques are available	Absence of a proven diagnostic protocol in the case of GVI and GVJ

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Absence/presence of the pest in the EU territory (Section 3.2)	GVI and GVJ are not known to be present in the EU. GVE is reported from three MSs, but its presence is considered restricted	GVI and GVJ are not known to be present in the EU. GVE is reported from three MSs, but its presence is considered restricted	Unreported presence (GVI and GVJ) or more widespread presence (GVE) in the EU
Regulatory status (Section 3.3)	GVE, GVI and GVJ can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GVE, GVI and GVJ can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GVE, GVI and GVJ not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GVE, GVI and GVJ are able to enter in the EU. The *Vitis* plant for planting pathway is closed. Other pathways (vectors) are open (*P. comstocki,* in the case of GVE) or possibly open (unknown vectors in the case of GVI and GVJ). If GVE, GVI and GVJ were to enter or further enter in the EU, they could become established and spread	Plants for planting constitute the main means of spread for GVE, GVI and GVJ	- Geographical distribution; - Vector transmission (in the case of GVI and GVJ); - *P. comstocki* association with consignments of unregulated plants (in the case of GVE); - Efficiency of natural spread of GVE, GVI and GVJ under EU conditions
Potential for consequences in the EU territory (Section 3.5)	Due to the limited information, the Panel is unable to conclude on the potential consequences in the EU territory	Due to the limited information, the Panel is unable to conclude whether the presence of GVE, GVI and GVJ on *Vitis* plants for planting would impact their intended use	
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	With the potential exception of the criterion regarding the consequences in the EU territory, for which the Panel is unable to conclude (see Section 3.5), GVE, GVI and GVJ meet all the other criteria evaluated by EFSA to qualify as potential Union quarantine pests	GVE, GVI, GVJ are non-EU viruses (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such do not meet the EFSA criterion to qualify as a potential Union RNQP	

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which, due to the limited information, the Panel was unable to conclude; - Unreported presence (GVI and GVJ) or more widespread presence (GVE) in the EU; - Vector transmission (in the case of GVI and GVJ); - *P. comstocki* association with consignments of unregulated plants (in the case of GVE); - Efficiency of natural spread of GVE, GVI and GVJ under EU conditions. Given the very limited available information on these very recently described viruses, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.17: GRAPEVINE VIRUS S

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of GVS is established and diagnostic techniques are available	The identity of GVS is established and diagnostic techniques are available	Absence of a proven diagnostic protocol
Absence/presence of the pest in the EU territory (Section 3.2)	GVS is not known to be present in the EU	GVS is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	GVS can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GVS can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	GVS not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	GVS is able to enter in the EU. The main pathway *Vitis* plants for planting is closed by existing legislation. Other potential pathways (other hosts) may possibly be open. If GVS were to enter the EU territory, it could become established and could spread	Plants for planting constitute the main means for spread for GVS	- Geographical distribution; - Existence of other natural hosts
Potential for consequences in the EU territory (Section 3.5)	Due to the limited information, the Panel is unable to conclude on the potential consequences in the EU territory	Due to the limited information, the Panel is unable to conclude whether the presence of GVS on *Vitis* plants for planting would impact their intended use	

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	With the possible exception of the consequences in the EU territory, for which the Panel is unable to conclude (see Section 3.5), GVS meets all the other criteria evaluated by EFSA to qualify as potential Union quarantine pest	GVS is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which the Panel was unable to conclude due to the limited information; - Possible unreported presence in the EU; - Biology (host range). Given the very limited available information on this very recently described virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.18: SUMMER GRAPE ENAMOVIRUS (SGEV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of SGEV is established and diagnostic techniques are available	The identity of SGEV is established and diagnostic techniques are available	Absence of a proven diagnostic protocol
Absence/presence of the pest in the EU territory (Section 3.2)	SGEV is not known to be present in the EU	SGEV is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	SGEV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	SGEV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	SGEV not explicitlymentioned in Directive 2000/29/EC

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	SGEV is able to enter in the EU. The main pathway *Vitis* plants for planting is closed by existing legislation. Other potential pathways (other hosts, vectors) may possibly be open. If SGEV were to enter the EU territory, it could become established and spread	Plants for planting constitute the main means of spread for SGEV	- Geographical distribution; - Vector transmission; - Existence of other natural hosts
Potential for consequences in the EU territory (Section 3.5)	Due to the limited information, the Panel is unable to conclude on the potential consequences in the EU territory	Due to the limited information, the Panel is unable to conclude whether the presence of SGEV on *Vitis* plants for planting would impact their intended use	–
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (section 4)	With the exception of the consequences in the EU territory, for which the Panel is unable to conclude (Section 3.5), SGEV meets all the other criteria evaluated by EFSA to qualify as potential Union quarantine pest	SGEV is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which the Panel was unable to conclude due to the limited information; - Possible unreported presence in the EU; - Biology (host range and vector transmission). Given the very limited available information on this virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.19: SUMMER GRAPE LATENT VIRUS (SGLV)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of SGLV is established and diagnostic techniques are available	The identity of SGLV is established and diagnostic techniques are available	Absence of a proven diagnostic protocol

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Absence/presence of the pest in the EU territory (Section 3.2)	SGLV is not known to be present in the EU	SGLV is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	SGLV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	SGLV can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	SGLV not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	SGLV is able to enter in the EU. The main pathway *Vitis* plants for planting is closed by existing legislation. Other potential pathways (other hosts, vectors) may possibly be open. If SGLV were to enter the EU territory, it could become established and spread	Plants for planting constitute the main means for spread for SGLV	- Geographical distribution; - Vector transmission; - Existence of other natural hosts
Potential for consequences in the EU territory (Section 3.5)	Due to the limited information, the Panel is unable to conclude on the potential consequences in the EU territory	Due to the limited information, the Panel is unable to conclude whether the presence of SGLV on *Vitis* plants for planting would impact their intended use	
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	With the exception of the consequences in the EU territory, for which the Panel is unable to conclude (see Section 3.5), SGLV meets all the other criteria evaluated by EFSA to qualify as potential Union quarantine pest	SGLV is a non-EU virus (considered as regulated in Annex IAI of Directive 2000/29/EC as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'), and as such does not meet the EFSA criterion to qualify as a potential Union RNQP	
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Potential consequences in the EU territory, on which the Panel was unable to conclude due to the limited information; - Possible unreported presence in the EU; - Biology (host range and vector transmission). Given the very limited available information on this virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

Table 18.20: WILD VITIS VIRUS 1 (WVV-1)

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Identity of the pest (Section 3.1)	The identity of WVV-1 is established and diagnostic techniques are available	The identity of WVV-1 is established and diagnostic techniques are available	Absence of a proven diagnostic protocol
Absence/presence of the pest in the EU territory (Section 3.2)	WVV-1 is not known to be present in the EU	WVV-1 is not known to be present in the EU and therefore does not meet this criterion to qualify as potential Union RNQP	Possible unreported presence in the EU
Regulatory status (Section 3.3)	WVV-1 can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	WVV-1 can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L.'	WVV-1 not explicitly mentioned in Directive 2000/29/EC
Pest potential for entry, establishment and spread in the EU territory (Section 3.4)	WVV-1 is able to enter in the EU. The main pathway *Vitis* plants for planting is closed by existing legislation. Other potential pathways (other hosts, vectors) may possibly be open. If WVV-1 were to enter the EU territory, it could become established and spread.	Plants for planting constitute the main means of spread for WVV-1	- Geographical distribution; - Existence of additional host species; - Vector transmission
Potential for consequences in the EU territory (Section 3.5)	Potential consequences are likely nil or very limited since no symptoms are known to be associated with WVV-1 infection. Therefore, WVV-1 does not meet this criterion to qualify as potential Union quarantine pest	The presence of WVV-1 on plants for planting is not expected to have impact their intended use. Therefore, WVV-1 does not meet this criterion to qualify as a potential Union RNQP	
Available measures (Section 3.6)	Phytosanitary measures are available to reduce the likelihood of entry and spread into the EU	Certification of planting material for susceptible hosts is, by far, the most efficient control method	No uncertainty
Conclusion on pest categorisation (Section 4)	WVV-1 does not meet one of the criteria evaluated by EFSA to be regarded as potential Union quarantine pest since it is not expected to have a negative impact in the EU	WVV-1 does not meet two of the criteria evaluated by EFSA to qualify as a potential Union RNQP: 1) it is not present in the EU and can be considered as regulated in Annex IAI as 'Non-European viruses and virus-like organisms of *Cydonia* Mill., *Fragaria* L., *Malus* Mill., *Prunus* L., *Pyrus* L., *Ribes* L., *Rubus* L. and *Vitis* L; 2) it is not expected to impact the intended use of *Vitis* plants for planting	

Criterion of pest categorisation	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union quarantine pest	Panel's conclusions against criterion in Regulation (EU) 2016/2031 regarding Union regulated non-quarantine pest	Key uncertainties
Aspects of assessment to focus on/scenarios to address in future if appropriate	The main knowledge gaps or uncertainties identified concern: - Possible unreported presence in the EU; - Biology (host range and vector transmission). Given the very limited available on this virus, the development of a full PRA will not allow to resolve the uncertainties attached to the present categorisation until more data become available		

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Glossary

Containment (of a pest)	Application of phytosanitary measures in and around an infested area to prevent spread of a pest (FAO, 1995, 2017)
Control (of a pest)	Suppression, containment or eradication of a pest population (FAO, 1995, 2017)
Entry (of a pest)	Movement of a pest into an area where it is not yet present, or present but not widely distributed and being officially controlled (FAO, 2017)
Eradication (of a pest)	Application of phytosanitary measures to eliminate a pest from an area (FAO, 2017)
Establishment (of a pest)	Perpetuation, for the foreseeable future, of a pest within an area after entry (FAO, 2017)
Impact (of a pest)	The impact of the pest on the crop output and quality and on the environment in the occupied spatial units
Introduction (of a pest)	The entry of a pest resulting in its establishment (FAO, 2017)
Measures	Control (of a pest) is defined in ISPM 5 (FAO 2017) as 'Suppression, containment or eradication of a pest population' (FAO, 1995). Control measures are measures that have a direct effect on pest abundance. Supporting measures are organisational measures or procedures supporting the choice of appropriate Risk Reduction Options that do not directly affect pest abundance.
Pathway	Any means that allows the entry or spread of a pest (FAO, 2017)
Phytosanitary measures	Any legislation, regulation or official procedure having the purpose to prevent the introduction or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests (FAO, 2017)
Protected zones (PZ)	A Protected zone is an area recognised at EU level to be free from a harmful organism, which is established in one or more other parts of the Union.

Quarantine pest	A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled (FAO, 2017)
Regulated non-quarantine pest	A non-quarantine pest whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated within the territory of the importing contracting party (FAO, 2017)
Risk reduction option (RRO)	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 RRO may become a phytosanitary measure, action or procedure according to the decision of the risk manager
Spread (of a pest)	Expansion of the geographical distribution of a pest within an area (FAO 2017)

Abbreviations

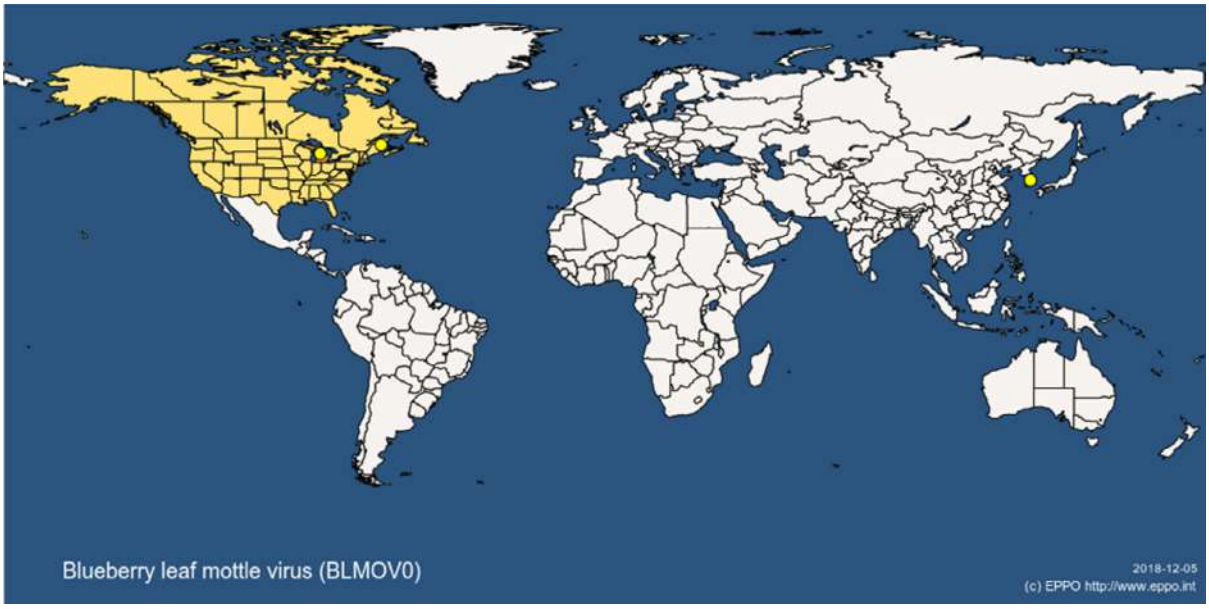
EPPO	European and Mediterranean Plant Protection Organization
FAO	Food and Agriculture Organization
HTS	High-throughput sequencing
IPPC	International Plant Protection Convention
ICTV	International Committee on Taxonomy of Viruses
ISPM	International Standards for Phytosanitary Measures
MS	Member State
PCR	Polymerase chain reaction
PLH	EFSA Panel on Plant Health
RNQP	Regulated non-quarantine pest
TFEU	Treaty on the Functioning of the European Union
ToR	Terms of Reference

Appendix A – Distribution maps of viruses

A.1. Distribution map of Grapevine yellow speckle viroid 2 (CABI, 2019)

A.2. Distribution map of Blueberry leaf mottle virus (EPPO, 2019)

Colour code: Yellow and orange indicate reported presence of the pest.

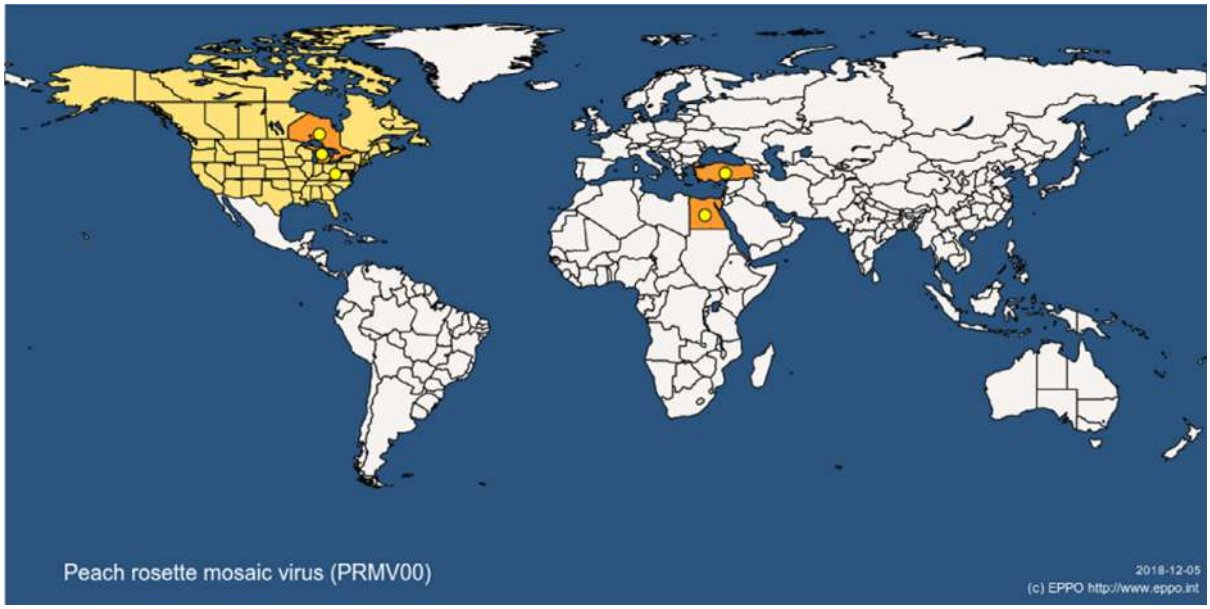


A.3. Distribution map of Grapevine deformation virus (CABI, 2019)

A.4. Distribution map of Grapevine red blotch virus (CABI, 2019)

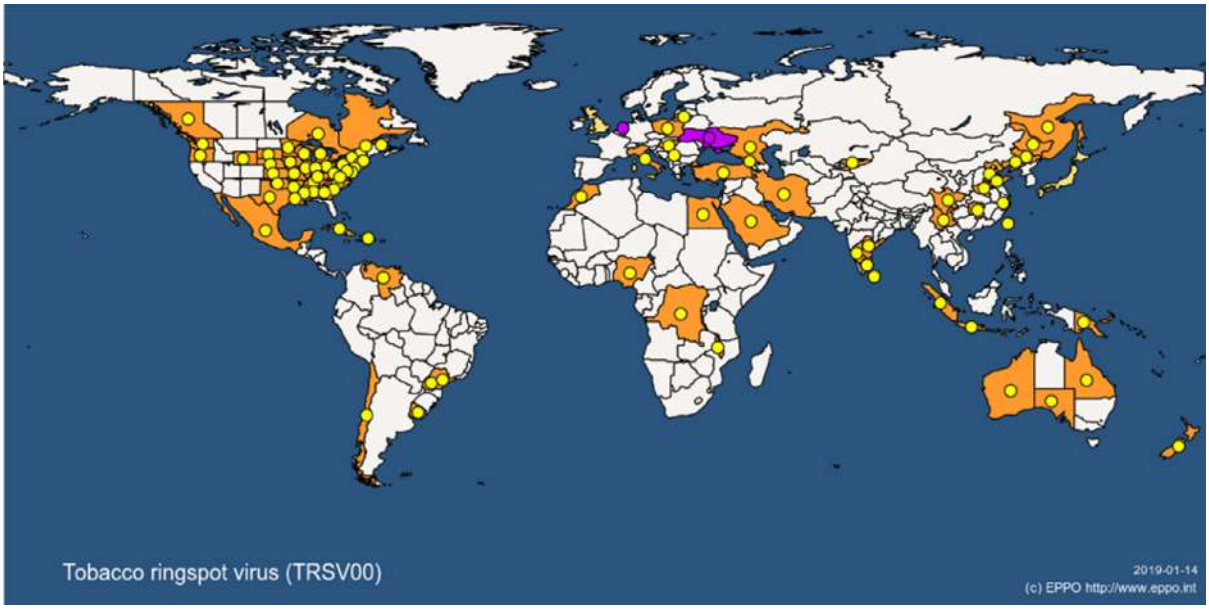
A.5. Distribution map of Peach rosette mosaic virus (EPPO, 2019)

Colour code: Yellow and orange indicate reported presence of the pest.



A.6. Distribution map of Tobacco ringspot virus (EPPO, 2019)

Colour code: Yellow and orange indicate reported presence and purple stands for reported transient presence of the pest.



A.7. Distribution map of Tomato ringspot virus (EPPO, 2019)

Colour code: Yellow and orange indicate reported presence and purple stands for reported transient presence of the pest.