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21 Bld Richard Lenoir
75011 Paris

Tel: 33 1 45 20 77 94
E-mail: hq@eppo.int

Web: www.eppo.int
GD: gd.eppo.int

2019/091 EPPO Q-bank: a new database maintained within the EPPO framework

EPPO Q-bank is a database to support diagnostic activities on plant pests which was transferred to EPPO and officially launched in May 2019. This database originally called Q-bank started as part of a Dutch project to strengthen the plant health infrastructure. Q-bank was first launched in 2010 and further developed in the framework of the EU funded project QBOL. Since 2011, the continuation of this project has been financed by the Dutch Ministry of Economic Affairs. The possible maintenance of Q-bank within EPPO has been discussed for several years and in September 2018, the EPPO Council agreed that the database should be transferred to EPPO.

The primary aim of EPPO Q-bank is to host sequence data for a number of pests, as well as to provide information on biological material, in particular from where this material can be obtained. Information is provided per discipline (arthropods, bacteria, fungi, nematodes, phytoplasmas, viruses & viroids, and invasive plants). Data from the original Q-bank database has now been transferred to the new EPPO Q-bank database, and during the course of 2019 and in 2020, further work will be conducted to harmonize the content and structure of the data among disciplines. Links are made between EPPO Q-bank and the EPPO Global Database, so that users can access additional pest-specific information, such as geographical distributions, pictures, and documents (e.g. EPPO Standards or Pest Risk Analyses).

The technical content of EPPO Q-bank is managed by a group of curators per discipline and the coordination of the work is ensured by the EPPO Secretariat.

Access EPPO Q-bank: https://qbank.eppo.int/

Source: EPPO Secretariat (2019-05).

Additional key words: database, EPPO

2019/092 New data on quarantine pests and pests of the EPPO Alert List

By searching through the literature, the EPPO Secretariat has extracted the following new data concerning quarantine pests and pests included (or formerly included) in the EPPO Alert List, and indicated in bold the situation of the pest concerned using the terms of ISPM no. 8.

- **New records**

In Ecuador, *Bactericera cockerelli* (Hemiptera: Triozidae - EPPO A1 List) was reported for the first time in March 2019. It was found in the provinces of Imbabura, Carchi, Pichincha, Cotopaxi and Tunguragua (IPPC, 2019). **Present: only in some areas.**

In Poland, *Cydalima perspectalis* (Lepidoptera: Crambidae – formerly EPPO Alert List) was observed for the first time in 2012 in the Dolny Śląsk region, and subsequently in the Opolszczyzna and Małopolska regions in 2015, as well as in the Podkarpacie region in 2016 (Bury *et al.*, 2016). **Present: only in some areas.**

Dacus ciliatus (Diptera: Tephritidae – EPPO A2 List) is recorded as a pest of courgette (*Cucurbita pepo*) in Côte d'Ivoire (Koné *et al.*, 2019). **Present, no details.**

In Nicaragua, *Maconellicoccus hirsutus* (Hemiptera: Pseudococcidae – EPPO A2 List) was first reported in 2018 on *Hibiscus* spp. in Rivas and Granada (IPPC, 2018). **Present: only in some areas.**

In 2017, *Thekopsora minima* (EPPO A2 List) was detected in a lot of *Vaccinium corymbosum* in a nursery in Galicia, Spain. Control measures were taken (Anonymous, 2018). **Present, few occurrences.**

In Haiti, *Tuta absoluta* (Lepidoptera: Gelechiidae – EPPO A2 List) was found for the first time in 2018. The pest was detected during a survey carried out from March to June 2018 in 4 tomato (*Solanum lycopersicum*) fields located in the South Department (Verheggen & Bertin Fontus, 2019). **Present: only in some areas.**

In Spain, *Plenodomus tracheiphilus* (mal secco – EPPO A2 list) was detected for the first time in 2015 in Málaga (Andalucía). Within the framework of a contingency plan, eradication measures have been applied (Anonymous, 2017). **Present: only in some areas, under eradication.**

- **Detailed records**

Epitrix papa (Coleoptera: Chrysomelidae – EPPO A2 List) was first detected in 2014 in two counties (Santa Cruz and Santana) on Madeira Island, Portugal. It had been previously misindentified as *E. similaris*. Surveys conducted in May and June 2018 detected it in 5 adjacent counties (Calheta, Machico, Ponta Do Sol, Porto Moniz, São Vicente). It is now present in 7 counties. It was detected in small production plots of potato (*Solanum tuberosum*) for home consumption. Official phytosanitary measures are being taken (NPPO of Portugal, 2018). **Present, only in some parts of the Member State concerned, under containment, in case eradication is impossible.**

In Azores (Portugal), *Globodera rostochiensis* (EPPO A2 List) was first detected during official surveys in 2018 in the municipality of Algarvia, on São Miguel island. Viable cysts were detected in a small plot grown for home consumption. The field was planted in 2016, 2017 and 2018 with seed potatoes (*Solanum tuberosum*) from other EU Member States. Intensive surveys did not detect the pest in neighbouring fields. Eradication measures are applied according to Directive 2007/33/EC (NPPO of Portugal, 2018). **Present, only in some parts of the Member State concerned, under eradication.**

In New Zealand, a single male specimen of *Bactrocera tryoni* (Diptera: Tephritidae – EPPO A1 List) was caught in February 2019 in a trap located at a residential property in Devonport, Auckland city (IPPC, 2019). **Transient: actionable, under surveillance.**

During surveys conducted in 2016/2017 in Lazio region, Italy, the presence of *Tomato leaf curl New Delhi virus* (*Begomovirus*, ToLCNDV – EPPO Alert List) was detected in the Southern part of the region on courgette (*Cucurbita pepo*), together with populations of *Bemisia tabaci* (Hemiptera: Aleyrodidae - EPPO A2 List). It was stressed that the presence of *B. tabaci* across Lazio could facilitate the northward spread of ToLCNDV to the rest of Lazio, as well as to nearby regions of Central Italy (Bertin *et al.*, 2018).

- **Eradication**

In Guadeloupe, bacterial fruit blotch caused by *Acidovorax citrulli* (EPPO A1 List) was first reported in March 2015 from symptomatic melon (*Cucumis melo*). Sanitation measures were applied, and no symptoms have been reported in 2018. The outbreak is considered eradicated. The authors considered that this first report of *A. citrulli* shows that it could represent a threat in the Caribbean area, where it has never previously been reported (Cunty *et al.*, 2019).

- **Host plants**

In May 2017, cotton (*Gossypium hirsutum*) plants showing stunting, loss of floral buds, foliage distortion, and thickened nodes were observed in the county of Sapezal, Mato Grosso state, Brazil. *Aphelenchoides besseyi* (EPPO A2 List) was isolated from leaf and stem samples. The identity of the nematode was confirmed by morphological and molecular methods. The ability of *A. besseyi* to infect cotton was confirmed in glasshouse experiments and Koch's postulates were fulfilled (Favoreto *et al.*, 2018).

- **Diagnostics**

A rapid and sensitive LAMP method has been developed in China for the detection of *Acidovorax citrulli* (EPPO A1 List) in cucurbit seeds (Yan *et al.*, 2019).

A rapid, sensitive and quantitative PCR method (real-time PCR) has been developed in Denmark for the specific detection of *Neonectria neomacrospora* (EPPO Alert List), both *in planta* and in collected airborne spore samples (Nielsen *et al.*, 2019).

- **Etiology**

Apple rubbery wood is a disease of unknown etiology, characterized by unusual flexibility of twigs and the smaller branches of apple trees. Recent studies using NGS (Next-Generation-Sequencing) technologies have identified two new viruses tentatively called Apple rubbery wood viruses 1 and 2. These viruses are thought to represent a new genus (suggested name is Rubodvirus) within the family Phenuiviridae (Rott *et al.*, 2018).

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Additional key words: absence, detailed record, diagnostics, new host plant, new record, etiology

Computer codes: APLOBE, ARW000, BEMITA, DACUCI, DACUTR, DEUTTR, DPHNPE, EPIXPP, GNORAB, HETDRO, NECTMA, PARZCO, PHENHI, PSDMAC, THEKMI, TOLCND, BR, CA, CI, EC, ES, GP, HT, NI, NZ, PL, PT

2019/093 New BBCH growth stage keys

The BBCH* growth stage keys aim to provide a standard and uniform description of the visible growth stages of plants, using a two-digit decimal code. This system has been developed for many important crops, such as cereals, rice, maize, rape, potato, fruit trees, small fruits, vegetables (see EPPO RS 2016/204). In 1997, the BBCH[1] growth stage keys were recommended by the EPPO Working Party on Plant Protection Products and by Council for use in EPPO countries, thus replacing the previously recommended EPPO growth stage keys. New BBCH scales have recently been published to describe the growth stages of the following plants:

- Indian jujube (*Ziziphus mauritiana*) (Krishna *et al.*, 2019)
- Jackfruit (*Artocarpus heterophyllus*) (Kishore, 2018)
- Montpellier rock-rose (*Cistus monspeliensis*) (Piga *et al.*, 2018)
- Pecan (*Carya illinoensis*) (Han *et al.*, 2018)
- Quinoa (*Chenopodium quinoa*) (Soza-Zuniga *et al.*, 2017)

[1] The abbreviation BBCH derives from the first letters of the German names of ***B***iologische Bundesanstalt (Federal Biological Research Centre), ***B***undessortenamt (Federal Plant Variety Office) and ***Ch***emical industry.

Source: Han M, Peng F, Marshall P (2018), Pecan phenology in Southeastern China. *Annals of Applied Biology* **172**(2), 160-169. DOI:10.1111/aab.12408
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Additional key words: growth stage key

2019/094 Recommendations to policy makers from Euphresco projects

The following research projects have recently been carried out in the framework of Euphresco (network for phytosanitary research coordination and funding – hosted by EPPO). The reports presenting the main objectives and results of these projects, as well as recommendations made to policy makers, can be viewed on the Internet.

Harmonized protocol for monitoring and detection of *Xylella fastidiosa* in its host plants and its vectors
The project was undertaken (i) to strengthen/build the capacity of the laboratories working on the diagnosis of *Xylella fastidiosa* and (ii) to improve the performance (such as reliability and sensitivity) of the diagnostic tests used for the detection and identification of the bacterium in host plants and insect vectors. The outcomes of the project supported the revision of the EPPO Diagnostic Protocol PM 7/24 *Xylella fastidiosa*. Although relevant research efforts have been devoted in the last 5 years to improve the diagnostic tools available for *X. fastidiosa*, more research is needed to better estimate the threshold of detectability in asymptomatic hosts as well as to better define the latency period in relation to the numerous host species and the different bacterial strains.

Authors: Saponari M, Gottsberger R, Maes M, Dimitrova E, Križanac I, Olivier V, Jacques MA, Müller P, Fraser K, Ambrus A, Melika G, Loreti S, Bergsma-Vlami M, Bonants P, Sá Pereira P, Kornev K, Dreo T, Landa B, Matoušková H, D'Onghia AM, Balestra GM, Fatmi M, Kałużna M, Lin H, Krugner R, Cara M.

Duration of the project: from 2016-09-01 to 2018-08-21.

Report: https://zenodo.org/record/2656679#.XNVzj44zbct

Ring test for improved Potato virus Y strain detection
The main aim of the project was to develop and validate a protocol for the detection and identification of *Potato virus Y* (PVY) and its associated strains. During the project, different PVY strain identification tests were considered and data on these tests were shared by project partners in order to select those that allowed identification of a wide range of PVY strains; an interlaboratory comparison was organized and a validated protocol was agreed.

The primers described by Lorenzen *et al*. (2006) with modified and simplified one-step RT-PCR protocol (as described in the project report) are recommended as easy and cost-effective primary tests for PVY population studies. They provide good discrimination of the most common PVY strains. Nevertheless, due to the high variability of PVY, one method alone cannot provide conclusive identification of PVY strains. For a comprehensive and accurate PVY identification, it is recommended to use a combination of several antibodies (especially different N-specific antibodies should be used) and RT-PCR based methods. Another solution might be the sequencing of the full genome.

Authors: Lasner H, van der Sman P, Järvekülg L, Grausgruber-Gröger S, Renvoisé JP, Tomassoli L, Glais L, Smith L.

Duration of the project: from 2016-08-01 to 2018-06-30.

Report: https://zenodo.org/record/2640991#.XL8gfugzbct

Source: Euphresco (2019-05). https://www.euphresco.net/projects/

Additional key words: research, euphresco **Computer codes:** PVY000, XYLEFA

2019/095 EPPO report on notifications of non-compliance

The EPPO Secretariat has gathered below the notifications of non-compliance for 2019 received since the previous report (EPPO RS 2019/052). Notifications have been sent via Europhyt for the EU countries and Switzerland, and directly to the EPPO Secretariat by Bosnia and Herzegovina. The EPPO Secretariat has selected notifications of non-compliance made because of the detection of pests. Other notifications of non-compliance due to prohibited commodities, missing or invalid certificates are not indicated. It must be pointed out that the report is only partial, as many EPPO countries have not yet sent their notifications. When a consignment has been re-exported and the country of origin is unknown, the re-exporting country is indicated in brackets. When the occurrence of a pest in a given country is not known to the EPPO Secretariat, this is indicated by an asterisk (*).

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Acaridae, Fungi	*Piper betle*	Vegetables (leaves)	Bangladesh	Italy	1
Acaridae, Planococcus	*Solanaceae*	Vegetables	Sri Lanka	Italy	1
Aleurocanthus simplex	*Ficus elastica*	Plants for planting	Belgium	United Kingdom	1
Anthonomus eugenii	*Capsicum*	Vegetables	Mexico	United Kingdom	1
	Solanum melongena	Vegetables	Dominican Rep.	Netherlands	1
Aphididae	*Rosa*	Cut flowers	Colombia	Spain	1
Bemisia tabaci	*Abelmoschus esculentus*	Vegetables (leaves)	Nigeria	United Kingdom	1
	Alternanthera	Cuttings	Israel	United Kingdom	1
	Anubias barteri	Aquatic plants	Singapore	United Kingdom	1
	Capsicum	Vegetables	U. Arab Emirates	United Kingdom	1
	Capsicum annuum	Vegetables	India	United Kingdom	1
	Capsicum annuum	Vegetables	Israel	United Kingdom	1
	Capsicum annuum	Vegetables	Morocco	France	6
	Capsicum annuum	Vegetables	Turkey	United Kingdom	2

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
***B. tabaci* (cont.)**	*Cestrum latifolium*	Vegetables (leaves)	Suriname	Netherlands	2
	Corchorus olitorius	Vegetables (leaves)	Nigeria	United Kingdom	1
	Corchorus olitorius, Hibiscus sabdariffa	Vegetables (leaves)	Nigeria	United Kingdom	1
	Corchorus olitorius, Ocimum gratissimum	Vegetables (leaves)	Nigeria	United Kingdom	1
	Cryptocoryne beckettii	Aquatic plants	Singapore	United Kingdom	1
	Echinodorus	Aquatic plants	Singapore	United Kingdom	1
	Eryngium foetidum	Vegetables (leaves)	Laos	United Kingdom	1
	Eryngium foetidum	Vegetables (leaves)	Thailand	United Kingdom	1
	Eryngium foetidum, Ocimum basilicum, Ocimum tenuiflorum	Vegetables (leaves)	Laos	United Kingdom	1
	Exacum	Vegetables	Suriname	Netherlands	1
	Hibiscus sabdariffa	Vegetables (leaves)	Togo	Belgium	2
	Hibiscus sabdariffa	Vegetables (leaves)	Togo	United Kingdom	1
	Hypericum	Cut flowers	Zimbabwe	Netherlands	1
	Ipomoea batatas	Vegetables (leaves)	Congo, Dem. Rep.	Belgium	1
	Ipomoea batatas	Vegetables (leaves)	Togo	Belgium	1
	Lantana camara	Plants for planting	Netherlands	United Kingdom	1
	Lisianthus alatus	Cut flowers	Netherlands	United Kingdom	1
	Mandevilla splendens	Plants for planting	Netherlands	United Kingdom	1
	Manihot esculenta	Vegetables	Thailand	Ireland	1
	Manihot esculenta, Piper betle, Persicaria odorata	Vegetables	Cambodia	Netherlands	1
	Nerium oleander	Plants for planting	Portugal	United Kingdom	1
	Nyctanthes arbor-tristis	Plants for planting	Thailand	United Kingdom	1
	Ocimum	Vegetables (leaves)	Thailand	United Kingdom	1
	Ocimum basilicum	Vegetables (leaves)	Israel	United Kingdom	1
	Rosa	Cut flowers	India	United Kingdom	1
	Rosa	Cut flowers	India	United Kingdom	1
	Solanum macrocarpon	Vegetables	Suriname	Netherlands	2
	Telfairia occidentalis	Vegetables (leaves)	Nigeria	United Kingdom	2
Bemisia tabaci, Thrips palmi	*Corchorus*	Vegetables (leaves)	Malaysia	United Kingdom	1
***Blatta orientalis*, Carabidae, Elateridae, Orthoptera, Reduviidae**	*Bromus*	Seeds	Argentina	Italy	1
Caryedon serratus	*Mangifera, Tamarindus indica*	Fruit	Philippines	Italy	1
Chilli veinal mottle virus	*Capsicum frutescens*	Seeds	Thailand	United Kingdom	1
Clavibacter michiganensis* subsp. *michiganensis	*Solanum lycopersicum*	Seeds	Israel	Italy	1
Coccidae	*Psidium guajava*	Fruit	Vietnam	Italy	1
Coleoptera	*Several fungi*	Vegetables	Iran	Spain	1
Diptera	*Capsicum chinense*	Vegetables	Dominican Rep.	Spain	1
Fungi	*Carica papaya*	Fruit	Brazil	Spain	1
	Citrus limon	Fruit	Tunisia	Italy	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Globodera pallida	*Solanum tuberosum*	Ware potatoes	Greece	Bosnia & Herzegovina	1
	-	Soil & growing medium	Morocco	Spain	1
Globodera rostochiensis	*Ficus thonningii*	Plants for planting	China*	Spain	1
Heteroptera	*Cucurbita pepo*	Vegetables	Pakistan	Spain	1
Hirschmanniella caudacrena	*Vallisneria nana*	Aquatic plants	Malaysia	United Kingdom	2
	Vallisneria nana	Aquatic plants	Thailand	United Kingdom	1
Icerya seychellarum	*Annona muricata*	Vegetables (leaves)	Angola	United Kingdom	1
Lepidoptera	*Artocarpus heterophyllus*	Fruit	Bangladesh	Italy	1
	Capsicum	Vegetables	Senegal	Spain	2
Leptinotarsa decemlineata	*Lactuca sativa*	Vegetables (leaves)	France	United Kingdom	1
Leucinodes	*Solanum aethiopicum*	Vegetables	Cameroon	Belgium	2
	Solanum aethiopicum	Vegetables	Cameroon	Netherlands	1
	Solanum aethiopicum	Vegetables	Ghana	Germany	1
	Solanum aethiopicum	Vegetables	Togo	France	2
Liberibacter solanacearum	*Anethum graveolens, Daucus carota, Petroselinum crispum*	Seeds	France	Germany	1
Liriomyza	*Amaranthus*	Vegetables (leaves)	Sri Lanka	United Kingdom	1
	Amaranthus viridis	Vegetables (leaves)	Sri Lanka	United Kingdom	2
	Brassica oleracea var. alboglabra	Vegetables	Laos	United Kingdom	1
	Ocimum	Vegetables (leaves)	Ethiopia	United Kingdom	1
	Ocimum basilicum	Vegetables (leaves)	Ethiopia	United Kingdom	1
	Ocimum basilicum	Vegetables (leaves)	India	United Kingdom	1
	Ocimum basilicum	Vegetables (leaves)	Kenya	United Kingdom	1
	Ocimum basilicum	Vegetables (leaves)	Laos	United Kingdom	1
	Ocimum basilicum	Vegetables (leaves)	South Africa	United Kingdom	1
Liriomyza huidobrensis	*Chrysanthemum*	Cut flowers	Colombia	United Kingdom	1
	Dianthus hybrids	Cut flowers	China	Netherlands	1
	Eryngium	Cut flowers	Zimbabwe	Netherlands	1
	Gypsophila	Cut flowers	Ecuador	Italy	1
Liriomyza sativae	*Apium graveolens*	Vegetables	Suriname*	Netherlands	3
	Ocimum basilicum	Vegetables (leaves)	Cambodia	France	1
	Ocimum basilicum	Vegetables (leaves)	Kenya	Netherlands	1
	Ocimum basilicum	Vegetables (leaves)	Morocco*	France	1
Liriomyza sativae, Liriomyza trifolii	*Ocimum basilicum*	Vegetables (leaves)	Ethiopia	Ireland	1
Liriomyza trifolii	*Apium graveolens*	Vegetables	Israel	Netherlands	1
	Ocimum basilicum	Vegetables (leaves)	Ethiopia	Ireland	1
	Solidago	Cut flowers	Turkey	Netherlands	1
Phyllosticta citricarpa	*Citrus limon*	Fruit	Tunisia*	France	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
***P. citricarpa* (cont.)**	*Citrus maxima*	Fruit	China	Italy	1
	Citrus sinensis	Fruit	Guinea	Italy	1
	Citrus sinensis	Fruit	Tunisia*	France	6
Pseudaulacaspis pentagona	*Prunus persica*	Plants for planting	Italy	United Kingdom	1
Pseudococcidae	*Capsicum chinense*	Vegetables	Dominican Rep.	Italy	1
	Capsicum chinense	Vegetables	Dominican Rep.	Spain	1
	Nephelium lappaceum	Fruit	Thailand	Spain	1
Radopholus similis	*Stromanthe sanguinea*	Cuttings	Costa Rica	Netherlands	1
Ralstonia solanacearum	*Solanum tuberosum*	Ware potatoes	Egypt	Denmark	2
	Solanum tuberosum	Ware potatoes	Egypt	Germany	1
Ripersiella hibisci	*Zelkova*	Cuttings	China	Netherlands	1
Sclerotinia allii	*Allium cepa*	Stored products	Algeria	Spain	1
Scutellonema brachyurus	*Daphne*	Plants for planting	China	United Kingdom	1
Spodoptera	*Capsicum*	Vegetables	Dominican Rep.	France	1
	Capsicum annuum	Vegetables	India	United Kingdom	1
Spodoptera eridania	*Amaranthus dubius*	Vegetables (leaves)	Suriname	Netherlands	1
Spodoptera frugiperda	*Asparagus*	Vegetables	Peru	Netherlands	1
	Capsicum	Vegetables	Mozambique	Netherlands	1
	Capsicum	Vegetables	Suriname	Netherlands	6
	Capsicum chinense	Vegetables	Suriname	Netherlands	1
	Rubus ulmifolius	Fruit	Mexico	Netherlands	1
	Solanum macrocarpon	Vegetables	Suriname	Netherlands	2
	Solidago	Cut flowers	Zimbabwe	Netherlands	1
	Zea mays	Vegetables	Senegal	United Kingdom	1
Spodoptera littoralis	*Capsicum*	Vegetables	Zimbabwe	Netherlands	1
	Eryngium	Cut flowers	Zimbabwe	Netherlands	2
	Mentha	Vegetables (leaves)	Israel	Netherlands	1
	Mentha	Vegetables (leaves)	Kenya	Netherlands	1
	Ocimum basilicum	Vegetables (leaves)	Spain (Canary Isl.)	Germany	2
Spodoptera litura	*Alternanthera reineckii*	Cuttings	Malaysia	Netherlands	1
	Rosa	Cut flowers	Thailand	Switzerland	1
Stenocarpella maydis	*Zea mays*	Seeds	USA	France	2
Symmetrischema tangolias	*Solanum muricatum, Ullucus, Passiflora edulis, Passiflora ligularis*	Vegetables	Peru	Spain	1
Thaumatotibia leucotreta	*Annona muricata*	Fruit	Uganda	Luxembourg	1
	Capsicum	Vegetables	Kenya	Netherlands	1
	Capsicum	Vegetables	Rwanda	United Kingdom	1
	Capsicum annuum	Vegetables	Rwanda	Belgium	1
	Capsicum annuum	Vegetables	Rwanda	United Kingdom	3
	Capsicum annuum	Vegetables	Uganda	United Kingdom	7
	Capsicum chinense	Vegetables	Rwanda	United Kingdom	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
***T. leucotreta* (cont.)**	*Capsicum chinense*	Vegetables	Uganda	Sweden	2
	Capsicum frutescens	Vegetables	Uganda	United Kingdom	1
	Citrus reticulata	Fruit	Israel	France	4
	Gypsophila, Rosa	Cut flowers	Kenya	Netherlands	1
	Psidium guajava	Fruit	Angola	Portugal	1
	Rosa	Cut flowers	Kenya	France	1
	Rosa	Cut flowers	Kenya	Netherlands	5
	Rosa	Cut flowers	Kenya	United Kingdom	1
	Rosa	Cut flowers	Tanzania	Netherlands	1
	Rosa	Cut flowers	Uganda	Netherlands	3
	Rosa	Cut flowers	Zambia	Netherlands	1
Thripidae	*Capsicum frutescens*	Vegetables	Dominican Rep.	United Kingdom	1
	Corchorus olitorius, Telfairia occidentalis	Vegetables (leaves)	Nigeria	United Kingdom	1
	Hoya	Plants for planting	Thailand	United Kingdom	1
	Luffa acutangula	Vegetables	Dominican Rep.	United Kingdom	1
	Luffa acutangula	Vegetables	Ghana	United Kingdom	4
	Momordica	Vegetables	Bangladesh	United Kingdom	2
	Momordica balsamina	Vegetables	Dominican Rep.	United Kingdom	1
	Momordica charantia	Vegetables	Dominican Rep.	United Kingdom	3
	Momordica charantia	Vegetables	Ghana	United Kingdom	1
	Momordica charantia	Vegetables	Mexico	United Kingdom	2
	Solanum melongena	Vegetables	Dominican Rep.	United Kingdom	1
	Telfairia occidentalis	Vegetables (leaves)	Nigeria	United Kingdom	5
Thrips	*Luffa acutangula*	Vegetables	Ghana	United Kingdom	1
	Rosa	Cut flowers	Colombia	Spain	1
	Viola cornuta	Cut flowers	Egypt	Spain	1
Thrips palmi	*Abelmoschus esculentus*	Vegetables	Thailand	Austria	1
	Apium graveolens, Solanum melongena	Vegetables	Suriname	Netherlands	1
	Asparagus	Vegetables	Thailand	Netherlands	1
	Momordica charantia	Vegetables	Bangladesh	France	1
	Momordica charantia	Vegetables	Mexico	Netherlands	3
	Momordica, Solanum macrocarpon	Vegetables	Suriname	Netherlands	1
	Solanum macrocarpon	Vegetables	Suriname	Netherlands	2
	Solanum melongena	Vegetables	Dominican Rep.	Switzerland	1
	Solanum melongena	Vegetables	Suriname	Netherlands	2
Thysanoptera	*Momordica charantia*	Vegetables	Japan	France	1
	Momordica charantia	Vegetables	Sri Lanka	France	1
Tortricidae	*Rosa*	Cut flowers	Uganda	United Kingdom	1
Trogoderma variabile	*Solanum lycopersicum*	Seeds	China	Italy	1
Tuta absoluta	*Solanum lycopersicum*	Vegetables	Tunisia	France	3
	Solanum lycopersicum	Vegetables	Tunisia	Germany	3
Xanthomonas euvesicatoria	*Capsicum annuum*	Seeds	China*	Italy	1
Xiphinema americanum sensu stricto	*Ilex crenata*	Plants for planting	Japan*	Netherlands	1

- **Fruit flies**

Pest	Consignment	Country of origin	Destination	nb
Anastrepha	*Mangifera indica*	Peru	Germany	1
Anastrepha fraterculus	*Mangifera indica*	Peru	Spain	1
Anastrepha suspensa	*Diospyros kaki*	Brazil*	Germany	1
Bactrocera	*Averrhoa*	Malaysia	Netherlands	1
	Capsicum	Vietnam	Switzerland	1
	Capsicum annuum	Laos	United Kingdom	1
	Momordica charantia	Sri Lanka	Switzerland	1
	Syzygium	Suriname	Netherlands	1
	Syzygium malaccense	Sri Lanka	Switzerland	1
Dacus	*Momordica charantia*	Uganda	Sweden	1
***Tephritidae* (non-European)**	*Annona muricata*	Uganda	Luxembourg	1
	Capsicum	Indonesia	France	1
	Capsicum	Malaysia	United Kingdom	1
	Capsicum frutescens	Suriname	Netherlands	1
	Capsicum frutescens var. *baccatum*	Uganda	United Kingdom	1
	Diospyros kaki	Brazil	Belgium	1
	Diospyros kaki	Brazil	Belgium	1
	Mangifera indica	Burkina Faso	Netherlands	2
	Mangifera indica	Cameroon	France	2
	Mangifera indica	Cameroon	Italy	1
	Mangifera indica	Côte d'Ivoire	France	1
	Mangifera indica	Ghana	Germany	1
	Mangifera indica	Mali	France	2
	Mangifera indica	Peru	Belgium	1
	Momordica	Thailand	United Kingdom	1
	Momordica charantia	Sri Lanka	United Kingdom	1
	Passiflora	Rwanda	Italy	1
	Psidium guajava	Brazil	France	1
	Psidium guajava	India	France	1
	Solanum aethiopicum	Rwanda	Belgium	1
	Trichosanthes cucumerina	Bangladesh	United Kingdom	1
	Trichosanthes dioica	India	United Kingdom	1
	Ziziphus jujuba var. spinosa	Pakistan	United Kingdom	1
Zeugodacus	*Momordica charantia*	Sri Lanka	United Kingdom	2
	Trichosanthes dioica	Bangladesh	United Kingdom	1
Zeugodacus cucurbitae	*Cucurbita moschata*	Senegal	Spain	2

- **Wood**

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Aphelenchoides	Unspecified	Wood packaging material (crate)	China	Netherlands	1
Aphelenchoides, Bursaphelenchus mucronatus, Rhabditis	Unspecified	Wood packaging material (pallet)	Belarus	Netherlands	1
Aphelenchoides, Rhabditis, Tylenchus	Unspecified	Wood packaging material (pallet)	Belarus	France	1
Batocera lineolata lineolata,* Cerambycidae*, Cladosporium	Unspecified	Wood packaging material (pallet)	China	Germany	1
Bostrichidae	Unspecified	Wood packaging material (crate)	India	Germany	1
Buprestidae, Cerambycidae, Curculionidae, Hymenoptera, Staphylinidae	Unspecified	Wood packaging material (pallet)	China	Germany	1
Bursaphelenchus mucronatus	Unspecified	Wood packaging material	Belarus	Latvia	1
	Unspecified	Wood packaging material (crate)	China	Germany	1
	Unspecified	Wood packaging material (pallet)	Belarus	Austria	1
	Unspecified	Wood packaging material (pallet)	Belarus	France	1
	Unspecified	Wood packaging material (pallet)	Belarus	Germany	3
	Unspecified	Wood packaging material (pallet)	Belarus	Netherlands	1
	Unspecified	Wood packaging material (pallet)	Belarus	Poland	1
	Unspecified	Wood packaging material (pallet)	Russia	Poland	1
Bursaphelenchus mucronatus, Tylenchus	Unspecified	Wood packaging material (pallet)	Belarus	Germany	1
Bursaphelenchus xylophilus	Unspecified	Wood packaging material (crate)	China	Netherlands	1
Cerambycidae	Unspecified	Wood packaging material	China	Germany	1
	Unspecified	Wood packaging material	China (Hong Kong)	Germany	1
	Unspecified	Wood packaging material (pallet)	China	Germany	3
Cerambycidae, Curculionidae	Unspecified	Wood packaging material (pallet)	China	Germany	2
Curculionidae	Unspecified	Wood packaging material (pallet)	China	Austria	1
Insecta	Unspecified	Wood packaging material (pallet)	China	Germany	1
Rhabditis	Unspecified	Wood packaging material (pallet)	Russia	Hungary	1
Saperda tridentata, Scolytus multistriatus	Ulmus rubra	Wood and bark	USA	Italy	1
Sinoxylon	Unspecified	Wood packaging material	India	Germany	1
Trichoferus	Unspecified	Wood packaging material (crate)	China	Ireland	1
Xyleborinus saxeseni	Unspecified	Wood packaging material (pallet)	China	Austria	2
Xylotrechus	Unspecified	Wood packaging material (pallet)	Ukraine	Latvia	1

Source: EPPO Secretariat (2019-05).

INTERNET
EUROPHYT. Annual and monthly reports of interceptions of harmful organisms in imported plants and other objects.
http://ec.europa.eu/food/plant/plant_health_biosecurity/europhyt/interceptions/index_en.htm

2019/096 *Bactrocera dorsalis* in Italy: more details

As reported in EPPO RS 2018/215, *Bactrocera dorsalis* (Diptera: Tephritidae – EPPO A1 List) was detected for the first time in Southern Italy (Campania region) during an official survey.

A paper from Nugnes *et al.* (2018) provides additional details about the survey and the detection of *B. dorsalis*. In April and May 2018, 10 traps baited with methyl-eugenol were placed in 10 trapping locations in Campania (covering all provinces). All sites were chosen for their high variety of cultivated fruit (e.g. *Citrus, Diospyros kaki, Malus domestica, Prunus, Pyrus, Vitis*), to ensure the presence of ripe fruit throughout the monitoring period. Traps were checked until October 2018, and fruits showing signs of infestation by fruit flies were sampled every month. During the period from the 10th to the 30th of September 2018, 7 male specimens of *B. dorsalis* were caught in methyl-eugenol traps in 2 sites: 6 specimens in Nocera Inferiore (province of Salerno), and 1 specimen in Palma Campania (province of Napoli). These specimens were tentatively identified as *B. dorsalis* on the basis of their morphological characteristics. Molecular studies showed some differences between them, but concluded that all belonged to the *B. dorsalis* complex. Infested fruit collected during the survey were exclusively infested by *Ceratitis capitata* (EPPO A2 List), and not by *B. dorsalis*.

Following this first detection, the Italian NPPO conducted further surveys. The number of traps placed in the fields and in warehouses was increased, and a specific survey was initiated in the affected area. Demarcated areas with a 8 km radius were delimited around the two detection sites and official measures were taken to avoid any further spread. As of January 2019, no further specimens of *B. dorsalis* were caught in traps, nor found in fruit or soil samples.

The pest status of *Bactrocera dorsalis* in Italy is officially declared as: **Transient, isolated finding in two traps. No other detection during the subsequent specific survey. Actionable, under eradication.**

Source: INTERNET
Servizio Fitosanitario Regionale. *Bactrocera dorsalis*, mosca orientale della frutta. http://www.agricoltura.regione.campania.it/difesa/bactrocera.html

NPPO of Italy (2019-01).

Nugnes F, Russo E, Viggiani G, Bernardo U (2018) First record of an invasive fruit fly belonging to *Bactrocera dorsalis* complex (Diptera: Tephritidae) in Europe. *Insects* **9**, 182. doi:10.3390/insects9040182

Pictures: *Bactrocera dorsalis*. https://gd.eppo.int/taxon/DACUDO/photos

Additional key words: detailed record **Computer codes:** DACUDO, IT

2019/097 Update on the situation of *Anoplophora glabripennis* in France

Anoplophora glabripennis (Coleoptera: Cerambycidae – EPPO A1 List) was first discovered in France in 2003 (EPPO RS 2003/114). Since then several outbreaks were found in different parts of France and eradication measures are being applied (EPPO RS 2009/045, 2010/125, 2013/139, 2017/005).
The NPPO of France recently informed the Secretariat that the outbreak in Strasbourg (Alsace region) discovered in 2008 is now officially eradicated. Surveys were conducted in the demarcated area and no infested trees have been found since December 2014.
In the outbreak in Divonne-les-Bains (Ain department), first discovered in 2016 (EPPO RS 2017/005), 8 new infested trees were found and destroyed. The demarcated area was modified accordingly in France.

The pest status of *Anoplophora glabripennis* in France is officially declared as: **Transient, actionable, under eradication.**

Source: NPPO of France (2019-05).

Pictures: *Anoplophora glabripennis*. https://gd.eppo.int/taxon/ANOLGL/photos

Additional key words: detailed record, eradication **Computer codes:** ANOLGL, FR

2019/098 Update on the situation of *Xylotrechus chinensis* in France

In France, the presence of *Xylotrechus chinensis* (Coleoptera: Cerambycidae – EPPO Alert List) was officially reported in October 2018 (EPPO RS 2018/220). A recent paper provides additional information about the situation in France and reviews the biological data that is currently available about the pest. In France, two isolated outbreaks have been reported in Gironde and Hérault departments. The origin of these introductions remains unknown, but it is noted that, in both departments, the close proximity of seaports with large imports of goods with wood packaging material might have played a role. For the moment, it is also not known whether these findings correspond to established populations or not.

- In Gironde department, an adult specimen of *Xylotrechus chinensis* (Coleoptera: Cerambycidae – EPPO Alert List) was observed and photographed on the balcony of a private home in the municipality of Le Bouscat on the 13th of July 2018.

- In Hérault department, *X. chinensis* has been reported twice from the municipality of Sète. In October 2017, unknown cerambycid larvae were collected from a *Morus bombycis* tree in a private garden. The identity of one larva was later confirmed to be *X. chinensis* by molecular methods. In June 2018, an adult specimen of *X. chinensis* was collected from another site.

Source: Cocquempot C, Desbles F, Mouttet R, Valladares L (2019) *Xylotrechus chinensis* (Chevrolat, 1852), nouvelle espèce invasive pour la France métropolitaine (Coleoptera, Cerambycidae, Clytini). *Bulletin de la Société entomologique de France* **124**(1), 27-62.

Pictures: *Xylotrechus chinensis*. https://gd.eppo.int/taxon/XYLOCH/photos

Additional key words: detailed record **Computer codes:** XYLOCH, FR

2018/099 *Dendroctonus valens:* addition to the EPPO Alert List

Why: The red turpentine beetle, *Dendroctonus valens* (Coleoptera: Scolytidae), originating from North America was introduced into China (counties of Yangcheng and Xinshui - Shanxi province) in the early 1980s. In 1999, it was found in Hebei province and by 2003 this bark beetle had spread to 85 counties in 3 provinces of Northern China covering an area of more than 700 000 ha causing damage to pine trees. In China, it is estimated that *D. valen*s has killed more than 10 million pine trees since its introduction, mainly *Pinus tabulaeformis* (Chinese red pine), a species which has been widely planted in monoculture during reforestation programmes. Genetic studies conducted in China in 2005 indicated that *D. valens* was introduced from the Pacific Northwest of the USA, probably via multiple introductions. However, other studies comparing the symbiont fungi associated with *D. valens* in North America and China, suggest an introduction from Eastern North America. It is suspected that the introduction of *D. valens* into China has been associated with imports of unprocessed logs of *Pinus ponderosa* for use in mine construction. Considering this 'continental jump' and the severity of damage reported from China, the EPPO Panel on Quarantine Pests for Forestry recommended that *D. valens* should be added to the EPPO Alert List.

Where:
EPPO region: absent.
Asia: China (Beijing, Hebei, Henan, Neimenggu, Shaanxi, Shanxi).
North America: Canada (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Northwest Territories, Nova Scotia, Ontario, Québec, Saskatchewan), Mexico, USA (Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming).
Central America: Belize, Guatemala, Honduras, Nicaragua.

On which plants: In North America, *D. valens* can be found on many pine species (*Pinus* spp.) and occasionally on spruce (*Picea* spp.) and larch (*Larix* spp.). In Western North America, *P. ponderosa, P. contorta, P. jeffeyi, P. lambertiana, P. monticola* and *P. radiata* are the preferred hosts. In China, the primary host is *P. tabulaeformis*. *P. armandii, P. bungeana* and *Picea meyeri* have occasionally been attacked, with some mortality reported on *P. bungeana*. In Shanxi province, *P. sylvestris* is a rare non-native species and it has occasionally been attacked by *D. valens*. As *P. sylvestris* is more or less continuously distributed across northern Eurasia, it is supposed that this pine species could serve as a potential corridor for the spread of *D. valens* into Europe.

Damage: *D. valens* mainly colonizes the lower trunk and upper root system. it feeds on the inner bark of its host plants creating galleries which can girdle the tree trunk and ultimately kill the tree. On attacked trees, large reddish-white pitch tubes (mixture of resin and frass) on the bark, or pellets on the ground around the base of the trees, are usually the first signs of infestation.
Several fungal species have been reported in association with *D. valens*, although their possible role in tree mortality needs to be further studied. In China, the most consistently isolated fungus is *Leptographium procerum*, and studies have indicated that it was most probably introduced into China along with *D. valens*. The fungi associated with *D. valens* in China are different from those in the insect's native range (e.g. *Leptographium terebrantis,*

commonly associated with *D. valens* in the USA, has not been found in China; conversely, *L. sinoprocerum* is a new species which has been collected from *D. valens* only in China).
In its native range in North America and parts of Central America, *D. valens* is considered to be a secondary pest of pines in forests. It usually infests weakened or dying trees. It is often found in association with other bark and wood boring beetles (e.g. *Ips* and other *Dendroctonus*) but outbreaks and tree mortality attributed to *D. valens* alone are rare. In China, *D. valens* is considered to be a primary forestry pest and has killed millions of pine trees, as explained above. It is considered that the invasion of *D. valens* observed in China has been favoured by drought conditions, degradation of forest sites, presence of fungal associates and use of monocultures (e.g. *P. tabulaeformis*).
The eggs of *D. valens* are cylindrical with rounded ends, white, opaque and shiny, and about 1 mm long. The larva is a white, legless grub, with a brown head and brown tip to the abdomen. Fully grown larva is 10 to 12 mm long. The pupa is white and not enclosed in a cocoon. The adult beetle is 6 to 10 mm long and dark reddish-brown in colour.
Pictures can be viewed on the Internet:
https://www.invasive.org/browse/subthumb.cfm?sub=33
http://idtools.org/id/wbb/families/Wood_Boring_Beetle_Keys/Woodboring_Families/Media/Html/jbox_pages/U_Dendm_d.htm

Dissemination: Adult beetles are strong fliers, the flight distance of *D. valens* was shown to exceed 16 km in North America. In China, its flight distance could reach up to 35 km, and *D. valens* has been able to overcome the Lüliang and Taihang mountain ranges, thus demonstrating remarkable long-distance and altitudinal migrating abilities. Over long distances, trade of infested plants or wood products can transport the pest.

Pathways: Plants for planting (bonsais?), wood and bark, wood packaging material, dunnage made from *Pinus* spp. from countries where *D. valens* occurs.

Possible risks: Pine trees are widely planted across the EPPO region for forestry and ornamental purposes. *D. valens* is reported to attack many pine species, including species that are planted in the EPPO region (e.g. *P. sylvestris, P. radiata*), but data is generally lacking about the severity of damage of *D. valens* on other conifers. Due to the hidden mode of life of the insect, control of *D. valens* is difficult. In China, a national management programme was initiated in 2000 and included regulatory, sylvicultural, insecticidal, and semiochemical approaches. Entomopathogenic fungi (e.g. *Beauveria bassiana*) and predators (e.g. *Rhizophagus grandis* - Coleoptera: Rhizophagidae) have also been investigated as biocontrol agents. As *D. valens* could be a threat to pine trees in forests and urban environments, it is advisable to avoid its introduction into the EPPO region. It can be noted that several other American *Dendroctonus* species attacking conifer trees are already included on the EPPO A1 List (i.e. *D. adjunctus, D. brevicomis, D. frontalis, D. ponderosae, D. rufipennis*), but *D. valens* has never been specifically listed.

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EPPO RS 2014/085, 2019/099

Panel review date – Entry date 2019-05

Additional key words: Alert List **Computer codes:** DENCVA

2019/100 First report of '*Candidatus* Liberibacter solanacearum' in a potato tuber in Canada

In Canada, surveys have been conducted in potato (*Solanum tuberosum*) crops to verify the possible presence of zebra chip disease which is associated with '*Candidatus* Liberibacter solanacearum' (Solanaceae haplotypes are listed in the EPPO A1 List) and transmitted by *Bactericera cockerelli*. From 2013 to 2017, 397 potato samples showing phytoplasma-like symptoms, including proliferation of auxiliary shoots or tuber necrosis, were collected from commercial potato farms in Alberta, British Columbia, Manitoba, Ontario, Quebec and Saskatchewan. Results of laboratory tests (PCR, sequencing) showed that all samples were negative for '*Ca*. L. solanacearum' except a single tuber (*S. tuberosum* cv. Russet) showing necrotic symptoms. This tuber had been recovered in 2017, after harvest, at the edge of a commercial field in Alberta (county of Forty Mile). This is the first time that '*Ca*. L. solanacearum' is reported on potato in Canada.
The situation of '*Candidatus* Liberibacter solanacearum' in Canada can be described as follows: **Present, only in some areas, at low prevalence (detected in 1 potato tuber in Alberta).**

Source: Henrickson A, Kalischuk M, Lynn J, Meers S, Johnson D, Kawchuk L (2019) First report of zebra chip on potato in Canada. *Plant Disease* **103**(5), p. 1016.

Pictures: '*Candidatus* Liberibacter solanacearum'. https://gd.eppo.int/taxon/LIBEPS/photos

Additional key words: new record **Computer codes:** LIBEPS, CA

2019/101 Update on potato diseases in Russia

A study was carried out in Russia in 2015-2018. Potato (*Solanum tuberosum*) samples were collected from commercial fields in 11 regions. Analysis of 1025 leaf and 725 tuber samples confirmed the earlier reported data on the dominance of potato viruses Y, S, and M in most regions of European Russia, as well as relatively high incidences of *Clavibacter michiganensis* subsp. *sepedonicus* (EPPO A2 List), *Pectobacterium atrosepticum*, and *P. carotovorum* subsp. *carotovorum*.
The following records are new for the EPPO Secretariat:

- *Ralstonia solanacearum* (EPPO A2 List) was detected in two samples from Kostroma region (Central Russia). This is the first documented report for Russia.
- *Clavibacter michiganensis* subsp. *sepedonicus* (EPPO A2 List) in Eastern Siberia (Irkutsk region).
- *Dickeya dianthicola* (EPPO A2 List) in Eastern Siberia (Irkutsk region).
- *Potato spindle tuber viroid* (*Pospiviroid*, PSTVd - EPPO A2 List) in Eastern Siberia (Irkutsk region).
- *Potato mop-top virus* (*Pomovirus*, PMTV) in Central Russia (Leningrad region), Southern Russia (Samara region) and Eastern Siberia (Irkutsk).

Source: Malko A, Frantsuzov P, Nikitin M, Statsyuk N, Dzhavakhiya V, Golikov A (2019) Potato pathogens in Russia's regions: an instrumental survey with the use of real-time PCR/RT-PCR in matrix format. *Pathogens* **8**(1), 18. https://doi.org/10.3390/pathogens8010018

Additional key words: detailed record **Computer codes:** CORBSE, RALSSO, RALSSL, ERWICD, ERWICA, ERWIAT, PSTVD0, RU

2019/102 Thousand cankers disease found in Lombardia, Emilia-Romagna and Toscana (Italy)

As reported in EPPO RS 2016/153, both the fungus *Geosmithia morbida* and its vector *Pityophthorus juglandis* (Coleoptera: Scolytidae - walnut twig beetle) the causal agents of thousand cankers disease (EPPO A2 List) were recorded for the first time in Europe in the Veneto region in 2013 and in Piemonte in 2015. Phytosanitary measures are being applied, aiming at eradication in Piemonte and at containment in Veneto. At the end of 2016, the demarcated area for of thousand cankers disease in Veneto was 95 749 ha. Official surveys are performed in different regions of Italy.

- **Lombardia**

A single infested tree was detected in Lombardia in 2016 (18 km away from the outbreak in Piemonte). The infested tree and neighbouring trees within a surrounding area of 500 m were destroyed.

- **Toscana**

In Toscana, *G. morbida* and *P. juglandi* were first found in April 2018 in a walnut plantation for wood production (6000 m^2) in Rosano (province of Firenze). The plantation included mainly *Juglans nigra* trees with scattered *J. regia*. Only *J. nigra* trees were found to be infested. Other walnut plantations located in the area near the outbreak (also monitored with traps) did not show any symptoms of infestation. In January 2019, the whole infested plantation was destroyed. Further surveys will be conducted to detect any new infestation.

- **Emilia-Romagna**

In Emilia-Romagna *G. morbida* and *P. juglandi* were first found in February 2019 in the municipality of Luzzara in symptomatic *J. nigra* trees along a minor road. The trees are being destroyed and a demarcated area has been established.

The pest status of *Geosmithia morbida* in Italy is officially declared as: **Present, only in some parts of the Member State concerned.**

Source: INTERNET
EU (2017) Final report of an audit carried out in Italy from 12 September 2016 to 23 September 2016 in order to evaluate the situation and control for thousand canker disease. DG(SANTE) 2016-8796-MR. http://ec.europa.eu/food/audits-analysis/audit_reports/details.cfm?rep_id=3795

Moricca S, Bracalini M, Benigno A, Ginetti B (2019) Disease Note. Thousand cankers disease caused by *Geosmithia morbida* and its insect vector *Pityophthorus juglandis* first reported on *Juglans nigra* in Tuscany, Central Italy. *Plant Disease* **103**(2) p 369. DOI: 10.1094/PDIS-07-18-1256-PDN

NPPO of Italy (2018-11, 2019-02, 2019-04).

Pictures: *Geosmithia morbida*. https://gd.eppo.int/taxon/GEOHMO/photos
Pityophthorus juglandis. https://gd.eppo.int/taxon/PITOJU/photos

Additional key words: detailed record **Computer codes:** GEOHMO, PITOJU, IT

2019/103 Evaluation of the risk that kiln-dried walnut wood could be colonized by *Pityophthorus juglandis* (vector of *Geosmithia morbida*)

The fungus *Geosmithia morbida* and its vector *Pityophthorus juglandis* (Coleoptera: Scolytidae - walnut twig beetle) are the causal agents of the thousand cankers disease (EPPO A2 List) of walnut trees (*Juglans* spp.) in the USA and in Italy (recent introduction). Earlier studies had demonstrated that *P. juglandis* adults were able to enter and re-emerge from the bark of kiln-dried black walnut (*J. nigra*) slabs that were baited with a pheromone and hung in branches of infested *J. nigra* trees (Audley *et al.*, 2016). Considering that this experiment represented extreme conditions which were unlikely to occur during wood production and transport, further studies were conducted to continue evaluating the risk of *P. juglandis* colonizing kiln-dried walnut wood (Mayfield *et al.*, 2018). Comparisons were made between kiln-dried and fresh walnut slabs by varying both the presence of the aggregation pheromone and relative proximity to a beetle source (i.e. slabs placed on the ground or in the crown of a walnut tree). Results obtained indicated that kiln-dried bark was unsuitable for *P. juglandis* reproduction, and that the risk of kiln-dried walnut bark becoming colonized by *P. juglandis* during movement of commercial wood products was very low.

Source: Audley J, Mayfield A, Myers S, Taylor A, Klingeman W (2016) Phytosanitary methods influence posttreatment colonization of *Juglans nigra* logs by *Pityophthorus juglandis* (Coleoptera, Curculionidae: Scolytinae). *Journal of Economic Entomology* **109**(1), 213-221.

Mayfield AE III, Audley J, Camp R, Mudder BR, Taylor A (2018) Bark colonization of kiln-dried wood by the walnut twig beetle: effect of wood location and pheromone presence. *Journal of Economic Entomology* **111**(2), 996-999.

Pictures: *Pityophthorus juglandis*. https://gd.eppo.int/taxon/PITOJU/photos

Additional key words: biology, phytosanitary measures **Computer codes:** GEOHMO, PITOJU

2019/104 Update on the situation of *Curtobacterium flaccumfaciens* pv. *poinsettiae* in Germany

Curtobacterium flaccumfaciens pv. *poinsettiae* (EPPO Alert List) was found in 2016 in a greenhouse of a nursery in Lower-Saxony and eradicated (EPPO RS 2017/014). During trace-back investigations in relation with this first outbreak, *C. flaccumfaciens* pv. *poinsettiae* was found in Baden-Württemberg (municipality of Stuttgart) in November 2016 in a greenhouse producing *Euphorbia pulcherrima* plants for planting. Plants were produced from cuttings imported from Africa where the nursery maintains their mother plants. The NPPO did not take phytosanitary measures because all host plants had already been sold or destroyed and disinfection measures had been taken by the nursery. In 2017, samples were taken in the nursery and *C. flaccumfaciens* pv. *poinsettiae* was not detected. The pathogen is considered eradicated in Baden-Württemberg. The NPPO notes that the producer is now able to test the mother plants before import, which should reduce the risk of importing infected cuttings.
In Schleswig-Holstein, *C. flaccumfaciens* pv. *poinsettiae* was found in two greenhouses on plants of *E. pulcherrima* 'Scandic Early' in August and in October 2018. The nurseries observed symptoms and informed the NPPO. Samples were taken and the pathogen was identified. The infected plants and the neighbouring plants were destroyed, and disinfection measures are taken to avoid the spread of the pathogen. Official inspections take place on a weekly basis. Trace-back investigations are ongoing to find out the source of the infection.

The pest status of *Curtobacterium flaccumfaciens* pv. *poinsettiae* in Germany is officially declared as: **Transient, actionable, under eradication.**

Source: NPPO of Germany (2018-10, 2018-11, 2019-03).

Additional key words: detailed record **Computer codes:** CORBPO, DE

2019/105 Sugarcane chlorotic streak disease is caused by a new cercozoan species: *Phytocercomonas venanatans*

Chlorotic streak is a disease of sugarcane (*Saccharum* spp.), first observed in the 1930s on sugarcane crops in Australia, Java (Indonesia) and Hawaii (US), which was then observed in other sugarcane-growing areas of the world. The disease is characterized by yellow to creamy-white leaf streaks with irregular wavy margins. Necrotic areas within streaks and leaf tips can also be present, as well as reddening of the vascular bundles at the nodes within stalks. Affected sugarcane crops show reduced height and leaf number. The disease is spread by water and infected planting material. Although significant research has been done on sugarcane chlorotic streak disease, the identification of its causal agent remained unsuccessful for more than 90 years.

Recent studies using HTS techniques detected the presence of a new cercozoan species (in the order of Cercomonadida and belonging to a new genus) in diseased sugarcane plants, which was called *Phytocercomonas venanatans*. Pure cultures of *P. venanatans* could be established and inoculation studies confirmed that this new cercozoan species is the causal agent of sugarcane chlorotic streak disease (Koch's postulates could be completed).

P. venanatans is a single-celled eukaryotic organism. Cells are round to ovoid (6 to 15 µm long), ventrally flattened, and with two flagella. Cercomonads are abundant in soil and freshwater habitats where they are important bacterivores. They are also known to predate other microbial eukaryotes and larger organisms such as nematodes. However, this is the first time that a cercomonad is associated with a disease of a higher plant.

Source: Braithwaite KS, Ngo CN, Croft BJ (2018) Confirmation that the novel cercozoan *Phytocercomonas venanatans*, is the cause of the disease chlorotic streak in sugarcane. *Phytopathology* **108**(4), 487-494.

Ngo CN, Braithwaite KS, Bass D, Young AJ, Croft BJ (2018) *Phytocercomonas venanatans*, a new species of cercozoa associated with chlorotic streak of sugarcane. *Phytopathology* **108**(4), 479-486.

Additional key words: etiology **Computer codes:** PCRMVE

2019/106 *Cabomba caroliniana* in Belgium

Cabomba caroliniana (Cabombaceae: EPPO List of Invasive Alien Plants) is an aquatic submerged ground rooted species native to Argentina and North America. In the EPPO region the species is established in Austria, France, Germany, Hungary, the Netherlands and the United Kingdom (England). The species is invasive in the Netherlands, Australia, Canada, Japan and parts of the USA. In the EU, the species is listed as a species of Union concern (Regulation (EU) 1143/2014). In Belgium, the species was first reported in 1998 and again in 2013 from hydrologically isolated sites (EPPO RS 2017/069). In June 2017, two small viable fragments of *C. caroliniana* were found floating in the canal Dessel-Turnhout-Schoten near Sint-Lenaarts (province of Antwerp) and in August 2017, several fresh stem fragments were also observed in the canal Zuid-Willemsvaart near Neeroeteren (province of Limburg). A subsequent survey identified a single site along the canal Zuid-Willemsvaart where plants were rooted over an area of 60 m^2 and further viable fragments were found over a 25 km stretch of the canal between Neerharen and Bree. The authors suggest that the eradication of *C. caroliniana* seems unlikely as the species has entered and spread in waterways of considerable size and eradication methods which can be effective and are commonly used for invasive macrophytes are not suitable for large navigable waterbodies. However, surveys are needed in areas adjacent to the canal to determine the extent of further spread and management options will need to be considered to mitigate spread and impacts.

Source: Scheers K, Denys L, Jacobs I, Packet J, Smeekens V, Adriaens T (2019) *Cabomba caroliniana* Gray (Cabombaceae) invades major waterways in Belgium. *Knowledge and Management of Aquatic Ecosystems* **420**, 22.

Additional key words: invasive alien plant **Computer codes:** CABCA, BE

2019/107 Multispecies invasion can reduce the impact of single alien plants

It is often considered that habitats invaded by multiple invasive non-native species may suffer greater negative impacts than habitats invaded by single species. *Juglans regia* (Juglandaceae) is native to parts of the EPPO region, but non-native to Central Europe. The species has invaded woodland and abandoned agricultural land in central Europe, often being dispersed via seed spread by birds. *Solidago canadensis* (Asteraceae: EPPO List of Invasive Alien Plants) is native to North America and has been shown to have negative impacts on native biodiversity in the EPPO region. Both species have been shown to have allelopathic effects on native plant species. The potential impact of the two species was studied on native vegetation in abandoned fields in Poland. Native plant species richness and native plant cover was assessed in six different vegetation types. In some sites, the presence of *Betula pendula* (Betulaceae) was used as a control as the species is native and has a tendency to become established in abandoned fields, but it is non-allelopathic. The sites included native vegetation and (1) *B. pendula* (2) *J. regia,* (3) *S. canadensis* (4) *S. canadensis* and *B. pendula* and (5) *J. regia* and *S. canadensis*. When *S. canadensis* invaded alone, it caused a larger decrease in species richness and cover (74%) than when *J. regia* invaded alone (58%). However, when *J. regia* and *S. canadensis* co-occurred in abandoned fields, *J. regia* was dominant and strongly decreased *S. canadensis* density by 87%. The combined impact on native species diversity was much lower (15% decrease in native plant diversity) than when either *S. canadensis* or *J. regia* invaded alone.

Source: Lenda M, Skórka P, Knops J, Żmihorski M, Gaj R, Moroń D, Woyciechowski M, Tryjanowski P (2019) Multispecies invasion reduces the negative impact of single alien plant species on native flora. *Biodiversity Research*. DOI: 10.1111/ddi.12902

Pictures: *Juglans regia*. https://gd.eppo.int/taxon/IUGRE/photos
Solidago canadensis. https://gd.eppo.int/taxon/SOOCA/photos

Additional key words: invasive alien plant **Computer codes:** IUGRE, SOOCA, PL

2019/108 *Opuntia* species in Bulgaria

In Bulgaria, *Opuntia* species are popular ornamental species grown in gardens and other amenity areas. Three alien species of *Opuntia* (*Cactaceae*) were studied in a locality in Mt Lozenska, Mt Sredna Gora (Western) floristic region in Bulgaria. *Opuntia engelmannii* is native to North America and is commonly grown as an ornamental in gardens in Mediterranean regions. The species is invasive in Australia, Kenya, Namibia and South Africa, and in the EPPO region in Italy and Spain. It is also reported from France and Georgia. *Opuntia engelmannii* is reported from Bulgaria in 1984 but no precise location was given, and it is possible this report was a misidentification. In Bulgaria, several dozen shrubs of varying size were recorded in open stony slopes on Mt Lozenska. *Opuntia fragilis* is a low growing mat forming species also native to North America. In Bulgaria, the species was found on Mt Lozenska, in open stony and eroded places on a slope with siliceous bedrock. Several dozen mats of varying sizes are reported from this area. This is the first time the species is reported to occur in natural habitats in Bulgaria. In addition, *Opuntia humifusa* is reported from the same location (it has been previously reported from Bulgaria) and it is the most abundant and widespread of the three species in Mt. Lozenska. It is native to North America and locally established in Croatia, Germany Georgia (EPPO 2010/021) and Spain and widely established in France, Italy and Switzerland.

Source: Naydenova T, Vladimirov V, Bancheva S (2019) Contribution to the knowledge of naturalised *Opuntia* species (Cactaceae) in the Bulgarian flora. *Phytologia Balcanica* **25**, 39-46.

Pictures: *Opuntia* sp. https://gd.eppo.int/taxon/OPUSS/photos

Additional key words: new record **Computer codes:** OPUEN, OPUFR, OPUHU, BG

2019/109 *Asclepias speciosa* in Lithuania

Within the EPPO region, several non-native *Asclepias* (Apocynaceae) species have been recorded including *Asclepias curassavica*, *A. incarnata* and *A. syriaca*. The latter species is the most widespread species and listed as a species of Union concern (Regulation (EU) 1143/2014). In Lithuania, *A. syriaca* has been reported to occur in several localities in the south of the country. A survey was conducted to evaluate the distribution of the species, the habitats where the species is present and the potential impact of the species. In addition, herbarium specimens were assessed. During one survey in the district of Alytus, it was evident that plants there showed significant morphological differences compared to *A. syriaca* at other sites in Lithuania, even though herbarium specimens from the district of Alytus had been identified plants as *A.*

syriaca. Further evaluation showed that the herbarium specimens had been misidentified and the species was *A. speciosa*. Further herbarium studies showed that *A. speciosa* was first collected in Lithuania in 1962 in the Žuvintas mire (Alytus district) and a number of additional misidentifications has occurred in recent years. In the south of Lithuania, *A. speciosa* flowers abundantly in the studied population in the village of Liepakojai, however, there were no developed fruits in September 2018 and thus the colony survives and expands by vegetative renewal, spreading by long rhizomes. The authors note that *A. speciosa* can be considered as naturalized in Lithuania and this is the first record of its occurrence in Europe. It is likely that the species was introduced into Lithuania as an ornamental species around the end of the 19th century. It is possible that further populations of the species occur within Europe and may be misidentified as *A. syriaca*. Therefore, further surveys should be conducted to assess its distribution.

Source: Gudžinskas Z, Petrulaitis L, Žalneravičius E (2019) *Asclepias speciosa* (Apocynaceae, Asclepiadoideae): a rare or unrecognized alien species in Europe? *PhytoKeys* **131**, 29-41.

Additional key words: invasive alien plant **Computer codes:** ASCCU, ASCIN, ASCSY, ASCSP, LT

2019/110 Citizen science data can contribute to species distribution modelling

Citizen science programmes can be a useful tool to increase data acquisition and geographical coverage when assessing invasive alien plant species. In addition, citizen science programmes can encourage communication between scientific and non-scientific audiences. In Portugal, approximately 18 % of the mainland flora are alien species with most of them being introduced over the last few decades. The citizen science platform Invasoras.pt was created in 2013 and raises awareness about invasive alien plants in Portugal. The platform allows citizen scientists to report invasive plant occurrences and over a 3-year period, 11 000 occurrences were recorded for 56 plant species. Combining these data with data collected by researchers could improve the accuracy of species distribution models. To test this, three tree species alien to Portugal were modelled using occurrence data collected from two data sources (1) scientific sampling (4 630 occurrences), and (2) citizen science data (2 663 occurrences) collected from Invasoras.pt and which had been verified by experts. Three species were used in the study, all native to Southeast Australia and widespread and well documented in Portugal: *Acacia dealbata* (Fabaceae: EPPO List of Invasive Alien Plants), *A. longifolia* and *A. melanoxylon*. For each species the model was run with the scientific sampled dataset, the citizen science dataset and again combining both datasets. The potential distribution of the species was modelled using biomod2 (R package). All species distribution models delivered a high level of accuracy for predicting the area of invasion with the highest accuracy from the researchers' data. However, models using citizen science data, or the models using a combination of datasets, predicted an increase in the total area for all species. For *A. dealbata*, including citizen science data increased the model's prediction for distribution southwards which better reflected the widespread nature of the species. These results highlight the value of verified citizen science data and its utilization in modelling invasive alien plant distributions.

Source: César de Sá, Marchante H, Marchante E, Cabral JA, Pradinho J, Vicente JR (2019) Can citizen science data guide the surveillance of invasive plants? A model-based test with acacia trees in Portugal, *Biological Invasions* **21**, 2127-2141.

Pictures *Acacia dealbata*: https://gd.eppo.int/taxon/ACADA/photos
Acacia longifolia: https://gd.eppo.int/taxon/ACALO/photos
Acacia melanoxylon: https://gd.eppo.int/taxon/ACAME/photos

Additional key words: invasive alien plants **Computer codes:** ACADA, ACALO, ACAME PT

2019/111 Invasive alien plants can increase the abundance of generalist herbivorous insects

Acacia dealbata (Fabaceae: EPPO List of Invasive Alien Plants) and *Carpobrotus edulis* (Aizoaceae: EPPO List of Invasive Alien Plants) can cause negative impacts on native species and ecosystem services within the EPPO region. *A. dealbata* is native to Australia and has been present within the EPPO region since the early 1800s. It forms dense monospecific stands, reducing light, native plant cover and diversity in the understory. *C. edulis* is native to South Africa and has been present in the EPPO region since the early twentieth century. It invades coastal areas and cliffs and changes the dynamics of dunes and displaces local flora. The present study set out to assess the accumulation of herbivorous insects at different invasion levels of the non-native plant species and to evaluate whether introduced plants favour native or exotic herbivorous insects, as well as generalist or specialist herbivorous insects. To do this, *A. dealbata* was surveyed in nine areas (500 m apart) in the Iberian Peninsula including Galicia (Spain) and Região Norte (Portugal). In the same region, *C. edulis*, was surveyed in nine coastal areas with no known history of disturbance in the last 10 years. Sampling was conducted in 2015 and at each site, both invasive plant species were categorised into a low, medium or high occurrence based on its percentage cover, and herbivorous insect species were collected and identified. In total, 3 317 insects were identified during the study and the majority were spittlebug nymphs: *Philaenus spumarius* (Hemiptera: Aphrophoridae) found feeding on the non-native plants and other species. In addition, *Cercopis intermedia* (Hemiptera: Cercopidae) was found on *A. dealbata* in higher abundance compared to on other plant species. Two non-native species, *Icerya purchasi* (Hemiptera: Margarodidae) and *Nezara viridula* (Heteroptera: Pentatomidae) were found feeding on *A. dealbata*. The results highlight that alien plant invasions can alter herbivore community structure. This study shows that both *C. edulis* and *A. dealbata* act as hosts of native and exotic herbivores.

Source: Rodríguez, Thompson V, Rubido-Bará, Cordero-Rivera A, González L (2019) Herbivore accumulation on invasive alien plants increases the distribution range of generalist herbivorous insects and supports proliferation of non-native insect pests. *Biological Invasions* **21**, 1511-1527.

Additional key words: invasive alien plants **Computer codes:** ACADA, CBSED, ICERPU, NEZAVI, PHILSU, ES, PT