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2016/181 New additions to the EPPO A1 and A2 Lists

In September 2016, the EPPO Council approved the addition of the following pests to the EPPO A1 and A2 Lists of pests recommended for regulation as quarantine pests.

Addition to the A1 List (pests absent from the EPPO region):

- *Lycorma delicatula*
- *Xanthomonas fuscans* subsp. *aurantifolii*

Additions to the A2 List (pests locally present in the EPPO region):

- *Euwallacea fornicatus sensu lato* and *Fusarium euwallaceae*
- Due to taxonomic changes, *Epitrix similis* is replaced by *Epitrix papa*

For each individual pest, a datasheet and PRA documents are being prepared and will be available in due course on the EPPO website.

Source: EPPO Secretariat (2016-09).

Additional key words: EPPO Lists

Computer codes: EPIXPP, FUSAEW, LYCMDE, XANTAU, XYLBFO

2016/182 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) on the EPPO Alert List, and indicated in bold the situation of the pest concerned using the terms of ISPM no. 8.

- **New records**

In Sweden, *Chaetosiphon fragaefolii* (Hemiptera: Aphididae) was found for the first time in August 2016 in the county of Skåne on strawberry plants (*Fragaria x ananassa*) at 2 locations, a commercial field and a private garden. Routine inspections in commercial strawberry fields have been carried out in counties other than Skåne but no further findings have been made. No official phytosanitary measures have been taken (NPPO of Sweden, 2016). **Present, only in specific parts of the area concerned.**

Macrohomotoma gladiata (Hemiptera: Homotomidae) is a psyllid of Asian origin which feeds on *Ficus microcarpa*. This species has been introduced into the EPPO region in the early 2010s (EPPO RS 2011/219, 2016/010, and 2016/034). In September 2015, *M. gladiata* was found for the first time in North America, in California (US). The first specimens were collected on a backyard *Ficus microcarpa* tree in the city of Anaheim (Orange county). Other specimens were later found in a nearby location (Rung, 2016). **Present, first found in 2015 in California (Orange county).**

Basil downy mildew caused by *Peronospora belbahrii* has been reported from Spain. This pathogen has been detected in symptomatic samples of basil (*Ocimum basilicum*) collected from the island of Tenerife (Islas Canarias). It is also noted that in the last four years, this downy mildew has been causing severe symptoms and economic losses in Almería, Andalucía (Gómez Tenorio *et al.*, 2016). **Present, found in Andalucía and Islas Canarias (Tenerife).**

In 2015, *Raoiella indica* (Acari: Tenuipalpidae - formerly EPPO Alert List) was found for the first time in Namibia. The pest was collected from leaves of *Phoenix dactylifera* (date palm) in two locations near Ariamsvlei and Karasburg (Giliomee and Ueckermann, 2016). Present, first found in 2015 in two localities (near Ariamsvlei and Karasburg).

In 2016, during routine surveys, *Raoiella indica* (Acari: Tenuipalpidae - formerly EPPO Alert List) was observed for the first time in South Africa. The pest was found on leaves of *Phoenix dactylifera* (date palm) near the town of Upington, Northern Cape Province (IPPC, 2016). Present, first found in 2016 in one locality in Northern Cape Province.

In Israel, *Thaumastocoris peregrinus* (Hemiptera: Thaumastocoridae - formerly EPPO Alert List) was found for the first time in *Eucalyptus camaldulensis* near Tel Aviv in October 2014. A survey of several eucalyptus groves was conducted in Tel Aviv and its surroundings. The pest was collected in Herzliya, Gan Le'ummi Yarqon (Ramat Gan) and Gan B'Ivrit (Rishon LeZiyyon). In these localities, all eucalyptus trees growing in parks were infested by *T. peregrinus*. It is considered that the pest will continue to spread naturally within Israel, as no efficient control measures are available (Novoselsky and Freidberg, 2016). Present, first found in October 2014 near Tel Aviv.

In Mexico, *Thaumastocoris peregrinus* (Hemiptera: Thaumastocoridae - formerly EPPO Alert List) was found infesting *Eucalyptus camaldulensis* and *E. globulus* during a survey conducted in 2015. This is the first report of *T. peregrinus* in Mexico and in North America (Jiménez-Quiroz *et al.*, 2016). Present, first found in 2015.

Lonsdalea quercina subsp. *populi* was first described in 2013 in Hungary from oozing bark cankers on *Populus x euramericana* trees. This bacterium was also identified in China on poplar trees (*Populus x euramericana* '74/16' and 'Zhonglin 46') in the provinces of Henan and Shandong (EPPO RS 2015/057). More recently, *L. quercina* subsp. *populi* has been detected in Northern Spain on poplar hybrids. Symptoms were observed in 9 poplar plantations (*Populus x interamericana* 'Beaupré,' and *Populus x euramericana* 'I-214' and 'MC') in 5 localities of Castilla y León and Aragón during summer 2002, 2014, and 2015. (Berruete *et al.*, 2016). Present, no details.

Xanthomonas euvesicatoria (EPPO A2 List) occurs in Iran. The bacterium was found to be associated with outbreaks of bacterial spot in pepper (*Capsicum annuum*) fields in Marand county, East Azerbaijan province (Osdaghi *et al.*, 2016). Present, no details.

- Detailed records

In the Czech Republic, surveys have been conducted in South Moravia to better understand the distribution of Grapevine Pinot gris virus (*Trichovirus*, GPGV). From 2013 to 2014, 21 grapevine mother plants used by nurseries for propagation were collected from South Moravia and tested for the presence of GPGV. This virus was found in all tested vines, sometimes in association with other viruses (i.e. *Grapevine virus A*, *Grapevine fanleaf virus* and *Grapevine fleck virus*). It is concluded that this study confirms the widespread occurrence of GPGV in South Moravia, a major vine-producing region, and suggests that the virus is disseminated by infected propagation material (Eichmeier *et al.*, 2016).

- **Diagnostics**

On *Asteraceae*, ray blight is caused by three morphologically similar but phylogenetically distinct species: *Stagonosporopsis chrysanthemi* (EPPO A2 List), *S. inoxydabilis* and *S. tanacetii*. *S. chrysanthemi* is a specific pathogen of chrysanthemum while *S. inoxydabilis* has been found associated with various *Asteraceae*, and *S. tanacetii* has only been reported in Australia on pyrethrum. Three species-specific PCR tests, as well as a multiplex PCR test, have been developed to detect and identify these three *Stagonosporopsis* species (Vaghefi *et al.*, 2016).

- **New pests**

A new bacterium has recently been isolated from diseased *Pyrus pyrifolia* (Chinese pear) in China. Affected trees were showing bleeding cankers. The name *Dickeya fangzhongdai* sp. nov. has been proposed (Tian *et al.*, 2016).

A new bacterium has been isolated from diseased plant tissues collected from sweet and sour cherry trees (*Prunus avium* and *P. cerasus*) in Poland. Affected trees showed flower dieback and necrotic spots on shoots, leaves, and fruits. The name *Pseudomonas cerasi* sp. nov. (non Griffin, 1911) has been proposed (Kałużna *et al.*, 2016).

A new chrysomelid species, *Colaspis caligula* (Coleoptera: Chrysomelidae), has recently been described in Argentina in association with grapevine (*Vitis vinifera*). Similar to other *Colaspis* species, *C. caligula* seems to be univoltine. Larvae feed primarily on lateral grapevine roots and overwinter in the soil. Larvae are the most damaging life stage, as their feeding activities on the root can reduce water and nutrient absorption and favour secondary fungal infections. In Argentina, adults have been collected from November until March. They feed on young grapevine leaves perforating irregular holes into the leaf surface; they may also feed on young shoots and petioles. It is noted that damage caused by adults is probably not significant on mature plants but might be more problematic in young grapevine plantations. For the moment no data is available on the potential economic impacts caused by *C. caligula* on grapevine production (Agrain *et al.*, 2016).

During summer 2014, samples of lettuce (*Lactuca sativa* cv. 'Romana') showing mosaic, deformation and necrotic lesions were collected in a field near Latina (Lazio region), Italy. Studies revealed the presence of a new *Potyvirus*, tentatively called Lettuce Italian necrotic virus (LINV). Experiments also showed that *Myzus persicae* can transmit the virus in a non-persistent mode. LINV could also be mechanically transmitted to lettuce (cvs. 'Riccia' and 'Parella'), as well as to *Chenopodium quinoa* and *C. amaranticolor* on which only chlorotic local lesions were observed (Ciuffo *et al.*, 2016).

- **Taxonomy**

According to recent taxonomic studies, *Phellinus weirii* (= *Inonotus weirii*, *Phellinidium weirii* - EPPO A1 List) has been transferred into a new genus *Coniferiporia* gen. nov. (Zhou *et al.*, 2016).

Sources: Agrain FA, Cabrera N, Holgado MG, Vicchi FR (2016) *Colaspis caligula*, a new species found in association with *Vitis vinifera* (L.) crops in Argentina (Coleoptera: Chrysomelidae). *Zootaxa* 4161(2), 228-236.
DOI: <http://dx.doi.org/10.11646/zootaxa.4161.2.5>

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<https://www.ippc.int/en/countries/south-africa/pestreports/2016/09/first-detection-of-raoiella-indica/>
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Additional key words: new record, detailed record, diagnostic, new pest, taxonomy

Computer codes: CHTSFR, COLACA, DICKFA, GPGV00, INONWE, LINV00, LNSDQP, MAHOGL, MYCOLG, PEROBE, PHOMEI, PSDMCE, RAOIIN, STGSTA, THMCPE, XANTEU, AR, CN, CZ, ES, ES, IL, IR, IT, MX, NA, PL, SE, US, ZA

2016/183 EPPO report on notifications of non-compliance

The EPPO Secretariat has gathered below the notifications of non-compliance for 2016 received since the previous report (EPPO RS 2016/144). Notifications have been sent to EPPO via Europhyt for the EU countries and Switzerland. 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
<i>Aceria kuko</i>	<i>Lycium barbarum</i>	Plants for planting	Greece*	Cyprus	1
Aleyrodidae	<i>Amaranthus</i>	Vegetables (leaves)	Sri Lanka	France	1
<i>Anthonomus eugenii</i>	<i>Solanum melongena</i>	Vegetables	Dominican Rep.	Netherlands	1
<i>Argyrotaenia</i>	<i>Annona cherimola</i>	Fruit	Peru	Italy	1
<i>Atherigona orientalis</i>	<i>Solanum melongena</i>	Vegetables	Dominican Rep.	Germany	1
<i>Bemisia tabaci</i>	<i>Abelmoschus esculentus</i>	Vegetables	Jordan	United Kingdom	1
	<i>Ajuga</i>	Cuttings	Turkey	United Kingdom	1
	<i>Ajuga reptans</i>	Plants for planting	Israel	United Kingdom	1
	<i>Ajuga reptans</i>	Plants for planting	Netherlands	United Kingdom	2
	<i>Alternanthera sessilis</i>	Vegetables	Sri Lanka	United Kingdom	1
	<i>Apium graveolens</i>	Fruit	Thailand	Sweden	1
	<i>Apium graveolens</i>	Vegetables	Thailand	Sweden	1
	<i>Arabis</i>	Cuttings	Israel	United Kingdom	1
	<i>Capsicum frutescens</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Cardamine lyrata</i>	Plants for planting	Malaysia	United Kingdom	1
	<i>Corchorus</i>	Vegetables	Egypt	Netherlands	2
	<i>Corchorus</i>	Vegetables	Egypt	Sweden	1
	<i>Corchorus</i>	Vegetables	Egypt	United Kingdom	1
	<i>Corchorus</i>	Vegetables	Sierra Leone	United Kingdom	1
	<i>Corchorus olitorius</i>	Vegetables	Ghana	United Kingdom	1
	<i>Corchorus olitorius</i>	Vegetables	Jordan	United Kingdom	7
	<i>Corchorus olitorius</i>	Vegetables	Laos	United Kingdom	2
	<i>Corchorus olitorius</i>	Vegetables	Nigeria	Ireland	1
	<i>Corchorus olitorius</i>	Vegetables	Nigeria	United Kingdom	2
	<i>Corchorus olitorius,</i> <i>Hibiscus sabdariffa,</i> <i>Ocimum gratissimum</i>	Vegetables (leaves)	Ghana	United Kingdom	1
	<i>Crossandra</i>	Plants for planting	Netherlands	United Kingdom	2
	<i>Crossandra</i> <i>infundibuliformis</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Dipladenia splendens</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Elsholtzia ciliata</i>	Vegetables	Laos	United Kingdom	1
	<i>Elsholtzia ciliata</i>	Vegetables	Vietnam	United Kingdom	2
	<i>Eryngium foetidum,</i> <i>Mentha</i>	Vegetables (leaves)	Laos	Germany	1
	<i>Eryngium foetidum,</i> <i>Ocimum tenuiflorum</i>	Vegetables (leaves)	Cambodia	Sweden	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>B. tabaci</i> (cont.)	<i>Euphorbia pulcherrima</i>	Cuttings	Denmark	United Kingdom	1
	<i>Eustoma grandiflorum</i>	Cut flowers	Netherlands	United Kingdom	1
	<i>Gypsophila, Solidago</i>	Cut flowers	Israel	Netherlands	1
	<i>Hibiscus</i>	Plants for planting	Netherlands	United Kingdom	11
	<i>Hibiscus</i>	Vegetables	Nigeria	United Kingdom	1
	<i>Hibiscus rosa-sinensis</i>	Cut flowers	Netherlands	United Kingdom	1
	<i>Hibiscus rosa-sinensis</i>	Plants for planting	Netherlands	United Kingdom	5
	<i>Hibiscus sabdariffa</i>	Vegetables	Ghana	United Kingdom	1
	<i>Houttuynia cordata</i>	Cuttings	Malaysia	United Kingdom	1
	<i>Houttuynia cordata</i>	Vegetables	Vietnam	United Kingdom	1
	<i>Iberis</i>	Cuttings	Israel	Netherlands	1
	<i>Ipomoea batatas</i>	Vegetables	Togo	United Kingdom	1
	<i>Ipomoea batatas</i>	Vegetables	Vietnam	United Kingdom	1
	<i>Lantana</i>	Cuttings	Costa Rica	Germany	1
	<i>Lavandula</i>	Cuttings	Turkey	United Kingdom	1
	<i>Limnophila</i>	Vegetables	Laos	United Kingdom	1
	<i>Limnophila</i>	Vegetables	Vietnam	United Kingdom	1
	<i>Lippia</i>	Cuttings	Israel	United Kingdom	1
	<i>Lisianthus alatus</i>	Cut flowers	Netherlands	United Kingdom	3
	<i>Mandevilla</i>	Plants for planting	Netherlands	United Kingdom	2
	<i>Manihot esculenta</i>	Vegetables	Sierra Leone	United Kingdom	1
	<i>Manihot esculenta</i>	Vegetables	Thailand	Sweden	1
	<i>Mentha</i>	Vegetables (leaves)	Israel	Netherlands	4
	<i>Morinda citrifolia</i>	Vegetables	Thailand	Sweden	5
	<i>Nerium oleander</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Nerium oleander</i>	Plants for planting	Spain	United Kingdom	2
	<i>Ocimum</i>	Vegetables (leaves)	Israel	Netherlands	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Albania*	Switzerland	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	Netherlands	2
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	United Kingdom	4
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Malaysia	Netherlands	1
	<i>Ocimum gratissimum</i>	Vegetables (leaves)	Nigeria	United Kingdom	1
	<i>Origanum majorana</i>	Vegetables (leaves)	Israel	United Kingdom	1
	<i>Origanum vulgare</i>	Vegetables (leaves)	Israel	Ireland	1
	<i>Origanum vulgare</i>	Vegetables (leaves)	Israel	United Kingdom	1
	<i>Paederia</i>	Vegetables (leaves)	Vietnam	United Kingdom	1
	<i>Penstemon</i>	Cuttings	Turkey	United Kingdom	1
	<i>Perilla</i>	Vegetables	Laos	United Kingdom	1
	<i>Perilla frutescens</i>	Vegetables	Laos	United Kingdom	1
	<i>Perilla frutescens</i> var. <i>crispa</i>	Vegetables	Japan	Netherlands	1
	<i>Perilla frutescens</i> , <i>Persicaria odorata</i>	Vegetables (leaves)	Thailand	Sweden	1
	<i>Perilla frutescens</i> , <i>Piper sarmentosum</i>	Vegetables	Thailand	Sweden	1
	<i>Persicaria</i>	Cuttings	Israel	Netherlands	1
	<i>Persicaria odorata</i>	Vegetables	Laos	United Kingdom	2
	<i>Piper</i>	Vegetables	Laos	France	1
	<i>Piper sarmentosum</i>	Vegetables	Thailand	Sweden	2
	<i>Polygonum</i>	Vegetables (leaves)	Laos	France	1
	<i>Rosa</i>	Cut flowers	Israel	United Kingdom	1
	<i>Rotala indica</i>	Vegetables	Malaysia	United Kingdom	1
	<i>Salvia</i>	Cuttings	Israel	United Kingdom	1
<i>Scabiosa</i>	Plants for planting	Netherlands	United Kingdom	1	
<i>Telfairia occidentalis</i>	Vegetables	Nigeria	United Kingdom	1	
<i>Bephratelloides</i>	<i>Annona</i>	Fruit	Peru	Italy	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Bephratelloides</i> (cont.)	<i>Annona muricata</i>	Fruit	Peru	Italy	1
<i>Chalcodermus aeneus</i>	<i>Vigna unguiculata</i>	Vegetables	Dominican Rep.	Germany	2
<i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i>	<i>Solanum lycopersicum</i>	Seeds	India	France	1
Coccidae, Diplopoda, Formica, Gastropoda	<i>Dracaena</i>	Plants for planting	Costa Rica	Italy	1
Coleoptera	<i>Cyperus esculentus</i>	Vegetables	Burkina Faso	Spain	1
<i>Coraliomela quadrimaculata</i>	<i>Butia yatay</i>	Plants for planting	Argentina	Spain	1
<i>Delotococcus aberiae</i>	<i>Citrus paradisi</i>	Fruit	South Africa	France	1
<i>Dialeuropora decempuncta</i>	<i>Piper sarmentosum</i>	Vegetables	Laos	Germany	1
Diptera	<i>Psidium guajava</i>	Fruit	Bangladesh	Italy	1
Diptera, fungi	<i>Prunus dulcis</i>	Stored products	Australia	Spain	1
<i>Earias vittella</i>	<i>Abelmoschus esculentus</i>	Vegetables	Pakistan	Germany	1
<i>Elsinoe fawcettii</i>	<i>Citrus sinensis</i>	Fruit	Argentina	Spain	1
<i>Ephestia kuehniella</i>	<i>Capsicum annuum</i>	Stored products	China	Spain	1
	<i>Prunus dulcis</i>	Stored products	USA	Spain	2
<i>Epitrix</i>	<i>Solanum tuberosum</i>	Ware potatoes	Spain	Belgium	2
<i>Frankliniella occidentalis</i>	<i>Dianthus caryophyllus</i>	Cut flowers	Morocco	Spain	1
Fungi	<i>Cucurbita maxima</i>	Vegetables	Panama	Spain	1
	<i>Juglans regia</i>	Stored products	Chile	Spain	1
<i>Globodera pallida</i>	<i>Solanum tuberosum</i>	Ware potatoes	Cyprus	Germany	1
<i>Helicoverpa armigera</i> , <i>Spodoptera litura</i>	<i>Tagetes erecta</i>	Cut flowers	Thailand	Switzerland	1
<i>Helicoverpa zea</i>	<i>Dolichos</i>	Vegetables	Suriname	Netherlands	1
	<i>Physalis</i>	Vegetables	Mexico	Netherlands	1
Hemiptera	<i>Citrus paradisi</i>	Fruit	Mexico	Spain	2
<i>Hirschmanniella</i>	<i>Vallisneria</i>	Aquarium plants	Malaysia	Italy	1
Insecta	<i>Avena strigosa</i>	Seeds	Uruguay	France	2
	<i>Beaucarnea recurvata</i> , <i>Sansevieria trifasciata</i>	Plants for planting	Guatemala	Italy	1
	<i>Citrus paradisi</i>	Fruit	Mexico	France	1
<i>Lettuce mosaic virus</i>	<i>Lactuca sativa</i>	Seeds	Chile	Italy	1
<i>Leucinodes orbonalis</i>	<i>Solanum undatum</i>	Vegetables	Laos	Netherlands	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Liriomyza</i>	<i>Allium fistulosum</i>	Vegetables	Jamaica	United Kingdom	1
	<i>Allium tuberosum</i>	Vegetables	Thailand	United Kingdom	2
	<i>Amaranthus</i>	Vegetables (leaves)	Sri Lanka	United Kingdom	4
	<i>Amaranthus viridis</i>	Vegetables (leaves)	Ghana	United Kingdom	1
	<i>Amaranthus viridis</i>	Vegetables (leaves)	Sri Lanka	United Kingdom	2
	<i>Artemisia</i>	Vegetables	Vietnam	United Kingdom	1
	<i>Artemisia vulgaris</i>	Vegetables	Laos	United Kingdom	2
	<i>Centella asiatica</i>	Vegetables	Sri Lanka	United Kingdom	1
	<i>Chrysanthemum</i>	Cut flowers	Colombia	United Kingdom	1
	<i>Ocimum</i>	Vegetables (leaves)	Cambodia	United Kingdom	1
	<i>Ocimum</i>	Vegetables (leaves)	Jordan	United Kingdom	1
	<i>Ocimum</i>	Vegetables (leaves)	Kenya	United Kingdom	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Cambodia	Czech Republic	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Ethiopia	United Kingdom	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Mexico	United Kingdom	1
	<i>Sauropus</i>	Vegetables	Laos	United Kingdom	1
	<i>Sauropus androgynus</i>	Vegetables	Laos	United Kingdom	1
<i>Liriomyza bryoniae</i>	<i>Eustoma grandiflorum</i>	Cut flowers	Japan	Netherlands	1
<i>Liriomyza huidobrensis</i>	<i>Eryngium</i>	Cut flowers	Kenya	Netherlands	1
	<i>Gypsophila</i>	Cut flowers	Colombia	United Kingdom	1
<i>Liriomyza sativae</i>	<i>Amaranthus</i>	Vegetables (leaves)	Congo, Dem. Rep. of*	France	1
	<i>Moringa oleifera</i>	Vegetables	Thailand	Sweden	2
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Malaysia	Netherlands	1
<i>Liriomyza sativae, Liriomyza trifolii</i>	<i>Apium graveolens, Ocimum basilicum</i>	Vegetables	Malaysia	Netherlands	1
<i>Liriomyza trifolii</i>	<i>Chrysanthemum</i>	Cuttings	Ethiopia	Netherlands	2
	<i>Gypsophila</i>	Cut flowers	Israel	Czech Republic	1
	<i>Gypsophila</i>	Cut flowers	Israel	Netherlands	1
	<i>Gypsophila</i>	Cut flowers	Israel	Slovenia	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Cambodia*	France	1
	<i>Solidago</i>	Cut flowers	Zimbabwe	United Kingdom	1
<i>Meloidogyne hapla</i>	<i>Actinidia deliciosa</i>	Plants for planting	Argentina	Italy	1
<i>Orchidophilus</i>	<i>Dendrobium hybrids</i>	Plants for planting	Singapore	United Kingdom	1
<i>Phyllosticta citricarpa</i>	<i>Citrus</i>	Fruit	Bangladesh	France	1
	<i>Citrus</i>	Fruit	Cameroon*	France	1
	<i>Citrus limon</i>	Fruit	Argentina	France	1
	<i>Citrus limon</i>	Fruit	Argentina	Italy	1
	<i>Citrus limon</i>	Fruit	Argentina	Spain	2
	<i>Citrus limon</i>	Fruit	South Africa	France	1
	<i>Citrus limon</i>	Fruit	South Africa	Netherlands	1
	<i>Citrus limon</i>	Fruit	Vietnam	France	1
	<i>Citrus maxima</i>	Fruit	Cameroon*	Switzerland	1
	<i>Citrus paradisi</i>	Fruit	Swaziland*	United Kingdom	2
	<i>Citrus reticulata</i>	Fruit	Argentina	Netherlands	1
	<i>Citrus sinensis</i>	Fruit	Argentina	France	5
	<i>Citrus sinensis</i>	Fruit	Argentina	Spain	1
	<i>Citrus sinensis</i>	Fruit	South Africa	Netherlands	2
	<i>Citrus sinensis</i>	Fruit	Swaziland*	Netherlands	1
	<i>Citrus x tangelo</i>	Fruit	Swaziland*	United Kingdom	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Phytophthora ramorum</i>	<i>Rhododendron</i>	Plants for planting	Belgium	Estonia	5
	<i>Rhododendron</i>	Plants for planting	Denmark	Estonia	1
	<i>Rhododendron</i>	Plants for planting	Germany	Estonia	1
	<i>Rhododendron</i>	Plants for planting	Netherlands	Estonia	3
	<i>Rhododendron catawbiense</i>	Plants for planting	Belgium	United Kingdom	1
	<i>Rhododendron catawbiense</i>	Plants for planting	Netherlands	United Kingdom	1
<i>Plum pox virus</i>	<i>Prunus armeniaca</i>	Plants for planting	Greece	Cyprus	1
	<i>Prunus persica</i> var. <i>nucipersica</i>	Plants for planting	Greece	Cyprus	1
	<i>Prunus persica</i> , <i>Prunus persica</i> var. <i>nucipersica</i>	Plants for planting	Greece	Cyprus	1
<i>Potato spindle tuber viroid</i>	<i>Capsicum</i>	Seeds	China	United Kingdom	1
	<i>Capsicum annuum</i>	Seeds	USA	United Kingdom	1
<i>Pseudococcus</i>	<i>Citrus sinensis</i>	Fruit	Argentina	Spain	1
<i>Pseudomonas syringae</i> pv. <i>actinidiae</i>	<i>Actinidia chinensis</i> , <i>Actinidia deliciosa</i>	Plants for planting	(Switzerland)	Germany	1
Psocoptera	<i>Unspecified</i>	Algae	Morocco	Spain	3
<i>Radopholus similis</i>	<i>Vallisneria spiralis</i>	Plants for planting	Malaysia	Italy	1
<i>Ripersiella hibisci</i>	<i>Ficus thonningii</i>	Plants for planting	China*	Netherlands	2
<i>Sitophilus oryzae</i>	<i>Oryza sativa</i>	Stored products	Morocco	Spain	1
<i>Spodoptera</i>	<i>Apium graveolens</i>	Vegetables	Israel	United Kingdom	1
	<i>Beta vulgaris</i>	Vegetables	Israel	United Kingdom	1
	<i>Corchorus olitorius</i>	Vegetables	Laos	United Kingdom	1
	<i>Rosa</i>	Cut flowers	Thailand	Switzerland	1
	<i>Tagetes erecta</i>	Cut flowers	Thailand	Switzerland	1
<i>Spodoptera dolichos</i>	<i>Begonia</i>	Plants for planting	Costa Rica	Netherlands	1
<i>Spodoptera eridania</i>	<i>Solanum macrocarpon</i>	Vegetables	Suriname	Netherlands	1
<i>Spodoptera eridania</i> , <i>Spodoptera frugiperda</i>	<i>Solanum macrocarpon</i> , <i>Vigna unguiculata</i>	Vegetables	Suriname	Netherlands	1
<i>Spodoptera frugiperda</i>	<i>Momordica charantia</i>	Vegetables	Suriname	Netherlands	1
	<i>Solanum macrocarpon</i>	Vegetables	Suriname	Netherlands	1
	<i>Solanum melongena</i>	Vegetables	Suriname	Netherlands	1
<i>Spodoptera latifascia</i>	<i>Capsicum frutescens</i>	Vegetables	Dominican Rep.	Switzerland	1
<i>Spodoptera littoralis</i>	<i>Chrysanthemum</i>	Cut flowers	Kenya	Switzerland	1
	<i>Mentha</i>	Vegetables (leaves)	Ethiopia	Norway	1
	<i>Ocimum</i>	Vegetables (leaves)	Spain (Canary Isl.)	Netherlands	1
<i>Spodoptera litura</i>	<i>Abelmoschus esculentus</i>	Vegetables	India	Netherlands	1
	<i>Dendrobium</i>	Cut flowers	Thailand	Czech Republic	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>S. litura</i> (cont.)	<i>Ficus thonningii</i>	Plants for planting	China	Netherlands	1
	<i>Rosa</i>	Cut flowers	India	Netherlands	1
<i>Thaumatotibia leucotreta</i>	<i>Annona</i>	Fruit	Kenya	United Kingdom	1
	<i>Annona</i>	Fruit	Uganda	United Kingdom	1
	<i>Capsicum</i>	Vegetables	Kenya	United Kingdom	1
	<i>Capsicum</i>	Vegetables	Uganda	Germany	1
	<i>Capsicum</i>	Vegetables	Uganda	United Kingdom	5
	<i>Capsicum annum</i>	Vegetables	Kenya	United Kingdom	1
	<i>Capsicum frutescens</i>	Vegetables	Cameroon	France	1
	<i>Citrus sinensis</i>	Fruit	South Africa	France	4
	<i>Citrus sinensis</i>	Fruit	South Africa	Portugal	1
<i>Citrus sinensis</i>	Fruit	South Africa	Spain	1	
<i>Thaumetopoea processionea</i>	<i>Quercus robur</i>	Plants for planting	Netherlands	United Kingdom	1
Thripidae	<i>Momordica</i>	Vegetables	Dominican Rep.	United Kingdom	1
	<i>Momordica charantia</i>	Vegetables	Malaysia	United Kingdom	1
	<i>Orchis</i>	Cut flowers	Thailand	United Kingdom	1
<i>Thrips palmi</i>	<i>Dendrobium</i>	Cut flowers	Malaysia	Italy	5
	<i>Dendrobium</i>	Cut flowers	Thailand	Netherlands	2
	<i>Orchis</i>	Cut flowers	Thailand	United Kingdom	1
<i>Thrips parvispinus</i>	<i>Solanum aethiopicum</i>	Vegetables	Uganda	Switzerland	1
Thysanoptera	<i>Momordica charantia</i>	Vegetables	Sri Lanka	France	1
	<i>Solanum melongena</i>	Vegetables	Sri Lanka	Switzerland	1
<i>Tribolium confusum</i>	<i>Capsicum annum</i>	Stored products	China	Spain	1
<i>Xanthomonas citri</i> subsp. <i>citri</i>	<i>Citrus hystrix</i>	Fruit	(Vietnam)	Germany	1
	<i>Citrus hystrix</i>	Fruit	Indonesia	Netherlands	1
	<i>Citrus latifolia</i>	Fruit	Vietnam	United Kingdom	1
	<i>Citrus limon</i>	Fruit	Uruguay	Italy	1
<i>Xylella fastidiosa</i>	<i>Pelargonium x hortorum</i>	Cuttings	Mexico	Spain	1

• Fruit flies

Pest	Consignment	Country of origin	Destination	nb
<i>Anastrepha</i>	<i>Mangifera indica</i>	Colombia	France	1
	<i>Mangifera indica</i>	Dominican Rep.	United Kingdom	2
	<i>Mangifera indica</i>	Haiti	France	1
	<i>Mangifera indica</i>	Mexico	France	3
	<i>Selenicereus megalanthus</i>	Colombia	United Kingdom	1
<i>Bactrocera</i>	<i>Capsicum</i>	Thailand	United Kingdom	1
	<i>Luffa acutangula</i>	India	United Kingdom	1
	<i>Mangifera indica</i>	Egypt	Germany	1
	<i>Mangifera indica</i>	Senegal	Netherlands	1
	<i>Momordica charantia</i>	Vietnam	Switzerland	1
	<i>Momordica cochinchinensis</i>	Malaysia	United Kingdom	1
	<i>Psidium guajava</i>	Vietnam	United Kingdom	1

Pest	Consignment	Country of origin	Destination	nb
<i>Bactrocera</i> (cont.)	<i>Trichosanthes cucumerina</i>	Bangladesh	United Kingdom	1
	<i>Trichosanthes cucumerina</i> var. <i>anguina</i>	Sri Lanka	United Kingdom	1
	<i>Trichosanthes dioica</i>	Bangladesh	United Kingdom	1
<i>Bactrocera dorsalis</i>	<i>Annona</i>	Vietnam	France	1
	<i>Annona squamosa</i>	Thailand	Sweden	1
	<i>Mangifera indica</i>	Bangladesh	France	1
	<i>Mangifera indica</i>	Cameroon	France	1
	<i>Mangifera indica</i>	Senegal	France	2
	<i>Mangifera indica</i>	Senegal	Switzerland	1
	<i>Mangifera indica</i>	Thailand	Germany	1
<i>Psidium guajava</i>	Indonesia	Germany	1	
<i>Bactrocera invadens</i>	<i>Mangifera indica</i>	Bangladesh	Sweden	1
<i>Bactrocera latifrons</i>	<i>Capsicum</i>	Bangladesh*	France	1
	<i>Capsicum frutescens</i>	Cambodia*	France	1
	<i>Capsicum frutescens</i>	Laos	France	1
	<i>Capsicum frutescens</i>	Vietnam	Switzerland	1
<i>Bactrocera zonata</i>	<i>Annona</i>	Malaysia*	France	1
<i>Ceratitis capitata</i>	<i>Capsicum</i>	Senegal	United Kingdom	1
	<i>Capsicum</i>	Uganda	France	1
	<i>Capsicum annum</i>	Cameroon	France	1
	<i>Ziziphus</i>	Lebanon	France	1
<i>Dacus</i>	<i>Momordica charantia</i>	Ethiopia	Netherlands	1
Tephritidae (non-European)	<i>Annona</i>	Uganda	United Kingdom	1
	<i>Annona</i>	Vietnam	France	1
	<i>Annona muricata</i>	Cameroon	Belgium	1
	<i>Annona muricata</i>	Vietnam	Netherlands	1
	<i>Annona muricata</i> , <i>Mangifera indica</i>	Cameroon	France	1
	<i>Averrhoa carambola</i>	Malaysia	Netherlands	1
	<i>Averrhoa carambola</i>	Vietnam	United Kingdom	1
	<i>Baccaurea ramiflora</i>	Bangladesh	United Kingdom	1
	<i>Capsicum</i>	Bangladesh	United Kingdom	1
	<i>Capsicum</i>	China	United Kingdom	1
	<i>Capsicum</i>	Senegal	United Kingdom	1
	<i>Capsicum</i>	Zimbabwe	Switzerland	1
	<i>Capsicum annum</i>	Bangladesh	France	1
	<i>Capsicum annum</i>	India	United Kingdom	1
	<i>Capsicum frutescens</i>	Cambodia	France	1
	<i>Capsicum frutescens</i>	Laos	Netherlands	1
	<i>Capsicum frutescens</i>	Malaysia	Netherlands	1
	<i>Capsicum frutescens</i>	Uganda	Belgium	1
	<i>Capsicum frutescens</i>	Vietnam	Switzerland	2
	<i>Citrus tangerina</i>	South Africa	Spain	1
	<i>Cucumis sativus</i>	Bangladesh	United Kingdom	1
	<i>Fortunella</i>	South Africa	France	1
	<i>Luffa acutangula</i>	Kenya	United Kingdom	1
	<i>Malus</i>	Lebanon	France	1
	<i>Mangifera</i>	Dominican Rep.	United Kingdom	1
	<i>Mangifera</i>	Senegal	Belgium	1

Pest	Consignment	Country of origin	Destination	nb	
Tephritidae (non-European)	<i>Mangifera indica</i>	Bangladesh	Switzerland	1	
	<i>Mangifera indica</i>	Bangladesh	United Kingdom	2	
	<i>Mangifera indica</i>	Brazil	Belgium	1	
	<i>Mangifera indica</i>	Cameroon	Belgium	1	
	<i>Mangifera indica</i>	Dominican Rep.	France	1	
	<i>Mangifera indica</i>	Dominican Rep.	Netherlands	2	
	<i>Mangifera indica</i>	Dominican Rep.	United Kingdom	1	
	<i>Mangifera indica</i>	Egypt	United Kingdom	1	
	<i>Mangifera indica</i>	Mali	France	2	
	<i>Mangifera indica</i>	Mali	Netherlands	2	
	<i>Mangifera indica</i>	Mexico	Belgium	1	
	<i>Mangifera indica</i>	Pakistan	United Kingdom	1	
	<i>Mangifera indica</i>	Senegal	Belgium	1	
	<i>Mangifera indica</i>	Senegal	France	3	
	<i>Mangifera indica</i>	Senegal	Netherlands	1	
	<i>Mangifera indica</i>	Thailand	United Kingdom	1	
	<i>Manilkara zapota</i>	Vietnam	Switzerland	1	
	<i>Momordica charantia</i>	Cambodia	United Kingdom	1	
	<i>Momordica charantia</i>	Sri Lanka	France	1	
	<i>Momordica charantia</i>	Sri Lanka	United Kingdom	1	
	<i>Momordica charantia</i>	Uganda	Belgium	2	
	<i>Momordica charantia</i>	Vietnam	Switzerland	1	
	<i>Momordica cochinchinensis</i>	Malaysia	United Kingdom	1	
	<i>Passiflora edulis</i>	Togo	France	1	
	<i>Psidium guajava</i>	Egypt	Austria	1	
	<i>Psidium guajava</i>	Egypt	Belgium	1	
	<i>Psidium guajava</i>	Malaysia	Switzerland	1	
	<i>Psidium guajava</i>	Malaysia	United Kingdom	1	
	<i>Psidium guajava</i>	Vietnam	Switzerland	1	
	<i>Trichosanthes</i>	Bangladesh	United Kingdom	1	
	<i>Trichosanthes cucumerina</i>	Bangladesh	United Kingdom	1	
	<i>Trichosanthes cucumerina</i>	Sri Lanka	United Kingdom	2	
	<i>Trichosanthes dioica</i>	Bangladesh	United Kingdom	3	
	<i>Ziziphus</i>	Thailand	United Kingdom	1	
	<i>Ziziphus jujuba</i> var. <i>spinosa</i>	Malaysia	United Kingdom	1	
	<i>Ziziphus jujuba</i> var. <i>spinosa</i>	Thailand	United Kingdom	1	
	<i>Ziziphus mauritiana</i>	Vietnam	United Kingdom	1	
	<i>Zeugodacus cucurbitae</i>	<i>Momordica</i>	Bangladesh	France	1

• Wood

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Acanthosomatidae, Silvanidae, <i>Xyleborus</i>	Unspecified	Wood packaging material (pallet)	China	Austria	1
<i>Anoplophora glabripennis</i>	Unspecified	Wood packaging material (pallet)	China	Switzerland	2
<i>Aphelenchoides</i>	Unspecified	Wood packaging material	Panama	Portugal	1
Bostrichidae	Unspecified	Wood packaging material (pallet)	China	Switzerland	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Buprestidae	Unspecified	Wood packaging material (pallet)	China	Austria	1
<i>Bursaphelenchus fraudulentus</i>	Unspecified	Wood packaging material	India	Germany	1
<i>Bursaphelenchus mucronatus</i>	Unspecified	Wood packaging material	USA	Estonia	1
<i>Bursaphelenchus xylophilus</i>	Unspecified	Wood packaging material	China	United Kingdom	1
Carabidae, Cerambycidae, Diptera, Doliopygus, Histeridae, Miridae, Mordellidae, Nitidulidae, Scorpionidae, <i>Xyleborus volvulus</i>	<i>Triplochiton sceroxylon</i>	Wood and bark	Cameroon	Italy	1
Carabidae, Doliopygus, Formica, Histeridae, Miridae, Mordellidae, Nitidulidae, Scolytidae	<i>Triplochiton sceroxylon</i>	Wood and bark	Cameroon	Italy	1
Cerambycidae	Unspecified	Dunnage	Ukraine	Spain	1
	Unspecified	Wood packaging material	China	United Kingdom	1
	Unspecified	Wood packaging material (crate)	China	Germany	1
Cerambycidae, <i>Saperda tridentata</i>	<i>Juglans nigra, Ulmus rubra</i>	Wood and bark	USA	Italy	1
Ciidae	Unspecified	Wood packaging material (pallet)	China	Austria	1
Coleoptera	<i>Quercus alba</i>	Wood and bark	USA	Spain	1
	Unspecified	Dunnage	India	Spain	1
	Unspecified	Dunnage	Ukraine	Spain	4
	Unspecified	Wood packaging material (pallet)	China	Austria	1
Cryptophagidae, Mycetophagidae	Unspecified	Wood packaging material (pallet)	China	Austria	1
Cryptophagidae, Silvanidae	Unspecified	Wood packaging material (pallet)	China	Austria	1
<i>Dinoderus bifoveolatus</i>	Unspecified	Wood packaging material (pallet)	Indonesia	Switzerland	2
Insecta	<i>Quercus alba</i>	Wood and bark	USA	France	2
	Unspecified	Wood packaging material	China	Germany	1
	Unspecified	Wood packaging material (crate)	China	Switzerland	1
<i>Ips proximus</i>	Unspecified	Wood packaging material (pallet and crate)	Ukraine	Germany	1
Myriapoda	<i>Tectona grandis</i>	Wood and bark	Myanmar	Spain	1
Scolytidae	Unspecified	Wood packaging material	China	Germany	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Scolytidae</i> (cont.)	Unspecified	Wood packaging material	China	United Kingdom	1
<i>Seinura</i>	Unspecified	Wood packaging material (pallet)	Russia	Lithuania	1
<i>Sinoxylon</i>	Unspecified	Wood packaging material	Vietnam	Germany	3
	Unspecified	Wood packaging material (crate)	India	Germany	2
	Unspecified	Wood packaging material (pallet)	India	Germany	3
	Unspecified	Wood packaging material	China	Germany	2
	Unspecified	Wood packaging material	India	Czech Republic	1
<i>Sinoxylon</i>	Unspecified	Wood packaging material	Pakistan	Poland	1
	Unspecified	Wood packaging material	Sri Lanka	Sweden	1
	Unspecified	Wood packaging material (crate)	India	Germany	5
	Unspecified	Wood packaging material (crate)	Vietnam	Belgium	1
	Unspecified	Wood packaging material (pallet)	India	Germany	1
<i>Sinoxylon anale</i>	Unspecified	Dunnage	India	Greece	1
	Unspecified	Wood packaging material	India	Germany	2
<i>Trichoferus campestris</i>	Unspecified	Wood packaging material (crate)	China	Germany	1
	Unspecified	Wood packaging material (pallet)	China	Austria	1
<i>Xyleborinus artestriatus</i>	Unspecified	Wood packaging material	China	Germany	1
	Unspecified	Wood packaging material (crate)	China	Germany	1
<i>Xyleborus</i>	Unspecified	Wood packaging material (pallet)	China	Austria	2
<i>Xyleborus, Xylosandrus</i>	Unspecified	Wood packaging material (pallet)	China	Austria	2
<i>Xylopsocus capucinus</i>	Unspecified	Wood packaging material	China	Germany	1
<i>Xylosandrus</i>	Unspecified	Wood packaging material (pallet)	China	Austria	1
<i>Xylosandrus crassiusculus</i>	Unspecified	Wood packaging material	China	Germany	1

Source: EPPO Secretariat (2016-10).

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

2016/184 First report of *Tuta absoluta* in Nepal

In May 2016, *Tuta absoluta* (Lepidoptera: Gelechiidae - EPPO A2 List) was found for the first time in Nepal. The pest was detected in a commercial tomato (*Solanum lycopersicum*) crop in Kathmandu. During surveys conducted from May to June 2016, *T. absoluta* was found in 14 locations out of 17. Results showed that the pest was present in all major tomato-growing areas surveyed: Kathmandu, Lalitpur, Bhaktapur and Kavrepalanchok districts. In addition, *T. absoluta* was found in 1 location in Dhading district. The pest was collected from altitudes ranging from 725 m to 1664 m. It is concluded that, as *T. absoluta* is likely to continue to spread in Nepal, Integrated Pest Management strategies should be rapidly implemented. The situation of *Tuta absoluta* in Nepal can be described as follows: **Present, first found in 2016 in several districts (Bhaktapur, Dhading, Kathmandu, Kavrepalanchok and Lalitpur).**

Source: Bajracharya ASR, Mainali RP, Bhat B, Bista S, Shashank PR, Meshram NM (2016) The first record of South American tomato leaf miner, *Tuta absoluta* (Meyrick 1917) (Lepidoptera: Gelechiidae) in Nepal. *Journal of Entomology and Zoology Studies* 4(4), 1359-1363 (via PestLens).
<http://www.entomoljournal.com/archives/2016/vol4issue4/Part0/4-4-95-749.pdf>

Pictures: *Tuta absoluta*. <https://gd.eppo.int/taxon/GNORAB/photos>

Additional key words: new record

Computer codes: GNORAB, NP

2016/185 First report of *Tuta absoluta* in South Africa

In South Africa, *Tuta absoluta* (Lepidoptera: Gelechiidae - EPPO A2 List) was reported for the first time in August 2016. The first specimens were caught in 5 pheromone traps placed on the eastern border of the Mpumalanga province with Mozambique. No damage has been reported on tomato crops or any other host plant. The situation of *Tuta absoluta* in South Africa can be described as follows: **Present, first found in 2016 in Mpumalanga province.**

Source: IPPC website. Official Pest Reports - South Africa (ZAF-31/1 of 2016-09-01) First detection of *Tuta absoluta* in South Africa.
<https://www.ippc.int/en/countries/south-africa/pestreports/2016/09/first-detection-of-tuta-absoluta-in-south-africa/>

Pictures: *Tuta absoluta*. <https://gd.eppo.int/taxon/GNORAB/photos>

Additional key words: new record

Computer codes: GNORAB, ZA

2016/186 First report of *Tuta absoluta* in Uganda

Tuta absoluta (Lepidoptera: Gelechiidae - EPPO A2 List) has been observed for the first time infesting tomato (*Solanum lycopersicum*) in a farm located in Central Uganda. Pheromone traps were placed in and around the affected farm. The identity of the caught specimens as *T. absoluta* was confirmed by the International Centre of Insect Physiology and Ecology in Nairobi, Kenya.

The situation of *Tuta absoluta* in Uganda can be described as follows: **Present, first reported in 2016 in Central Uganda.**

Source: Tumuhaise V, Khamis FM, Agona A, Sseruwu G, Mohamed SA (2016) First record of *Tuta absoluta* (Lepidoptera: Gelechiidae) in Uganda. *International Journal of Tropical Insect Science* 36(3), 135-139 (abst.).

Pictures: *Tuta absoluta*. <https://gd.eppo.int/taxon/GNORAB/photos>

Additional key words: new record

Computer codes: GNORAB, UG

2016/187 First report of *Tuta absoluta* in Zambia

During official surveys conducted in Zambia, the presence of *Tuta absoluta* (Lepidoptera: Gelechiidae - EPPO A2 List) was detected for the first time in early 2016. The first specimens were caught in pheromone traps. A preliminary surveillance program has shown that the pest is present in the Northern, Central, and Lusaka provinces.

The situation of *Tuta absoluta* in Zambia can be described as follows: **Present, first found in 2016 in Northern Central and Lusaka provinces.**

Source: IPPC website. Official Pest Reports - Zambia (ZMB-01/1 of 2016-09-14) Reporting pest presence: preliminary surveillance reports on *Tuta absoluta* in Zambia. <https://www.ippc.int/en/countries/zambia/pestreports/>

Pictures: *Tuta absoluta*. <https://gd.eppo.int/taxon/GNORAB/photos>

Additional key words: new record

Computer codes: GNORAB, ZM

2016/188 First reports of *Spodoptera frugiperda* in Benin, Nigeria, São Tomé et Príncipe, and Togo

Outbreaks of *Spodoptera frugiperda* (Lepidoptera: Noctuidae - EPPO A1 List) were reported for the first time from Africa in early 2016. When the first observations of armyworms were made in late January 2016 on maize plants in Southwestern Nigeria and in IITA (International Institute of Tropical Agriculture) maize fields at Ibadan and Ikenne, attacks were initially attributed to indigenous species of *Spodoptera*. However, later in the season, high armyworm populations were also reported from Northern Nigeria, Benin and Togo. In April 2016, the government of São Tomé et Príncipe called upon FAO to organize a mission and provide assistance to maize growers because of the presence of armyworms. Samples (larvae and adults) were collected from maize plants from several locations in West and Central Africa and sent to the IITA research station in Cotonou (Benin) for identification. These studies confirmed the presence of *S. frugiperda* in Benin, Nigeria, São Tomé et Príncipe, and Togo. Most samples were identified using the morphological characteristics of the pest. In

addition to morphological identification methods, molecular tools were used to confirm the species identity on larval and adult specimens from Nigeria and São Tomé et Príncipe. These studies revealed the occurrence of at least two distinct haplotypes, thus suggesting that multiple introductions took place. It is considered that the introduction of *S. frugiperda* into the African continent is a serious threat to many important crops such as maize, millet, sorghum, rice, wheat and sugarcane, and may have adverse effects on export markets. It is concluded that the development of Integrated Pest Management programs are urgently needed to control *S. frugiperda* in Africa.

Source: Goergen G, Kumar PL, Sankung SB, Togola A, Tamò M (2016) First report of outbreaks of the fall armyworm *Spodoptera frugiperda* (J E Smith) (Lepidoptera, Noctuidae), a new alien invasive pest in West and Central Africa. PLoS ONE 11(10): e0165632. doi:10.1371/journal.pone.0165632

Pictures: *Spodoptera frugiperda*. <https://gd.eppo.int/taxon/LAPHFR/photos>

Additional key words: new record

Computer codes: LAPHFR, BJ, NG, ST, TG

2016/189 First report of *Drosophila suzukii* in Sweden

In Sweden, *Drosophila suzukii* (Diptera: Drosophilidae - EPPO A2 List) was first found in August 2014, in the municipality of Lund (county of Skåne (Scania)), in the southernmost part of the country. The first specimens were caught in traps, and identified morphologically according to the EPPO diagnostic protocol PM 7/115. This identification was confirmed by entomologists of the Swedish Museum of Natural History. In 2015, *D. suzukii* was caught in berry- and fruit-production sites, as well as in peri-urban areas, in 13 locations across the county of Skåne but was not detected in any other Swedish counties. *D. suzukii* was found on raspberry (*Rubus idaeus*), blueberry (*Vaccinium* sp.), plum (*Prunus domestica*) and red currant (*Ribes nigrum*). No official phytosanitary measures will be taken.

The pest status of *Drosophila suzukii* in Sweden is officially declared as: Present, only in specific parts of the area concerned. Presence restricted to the county of Scania.

Source: NPPO of Sweden (2016-10).

Pictures: *Drosophila suzukii*. <https://gd.eppo.int/taxon/DROSSU/photos>

Additional key words: new record

Computer codes: DROSSU, SE

2016/190 First report of *Dasineura oxycoccana* in the Czech Republic

The NPPO of the Czech Republic recently informed the EPPO Secretariat of the first finding of *Dasineura oxycoccana* (Diptera: Cecidomyiidae - formerly EPPO Alert List) on its territory. The pest was initially found on *Vaccinium corymbosum* plants grown outdoors in containers in a nursery in the Central Bohemian region. In this nursery, suspicious symptoms had been observed in July 2016 but as only eggs were found on damaged leaves, the identity of the pest could not be ascertained. In August 2016, adult specimens were caught using sweeping nets and yellow sticky traps. The identity of the pest was confirmed in September 2016 by morphological and molecular methods. In the nursery concerned, approximately 75% of the *V. corymbosum* plants (out of a total of 42 000 plants) were infested by *D. oxycoccana*. Affected plants showed distortion, brown to black discoloration followed by desiccation of

vegetative buds and a few leaves on terminal shoots. The infestation was evenly distributed across the nursery but damage was not considered to be very severe. Following this initial finding, a detection survey was conducted in nurseries, garden centres and fruit production plantations of *V. corymbosum* throughout the country. Results showed that *D. oxycoccana* was more widely distributed than originally thought (found at 15 locations in 6 regions) and could be considered as established in the Czech Republic. In addition, a rapid PRA was conducted and concluded that the overall phytosanitary risk was low with a moderate uncertainty. As a consequence, no phytosanitary measures will be taken. The pest status of *Dasineura oxycoccana* in the Czech Republic is officially declared as: **Present, only in some parts of the Czech Republic.**

Source: NPPO of the Czech Republic (2016-10).

Additional key words: new record

Computer codes: DASYVA, CZ

2016/191 Eradication of *Rhynchophorus vulneratus* from California (US)

In October 2010, *Rhynchophorus vulneratus* (Coleoptera: Curculionidae - formerly EPPO Alert List), originally identified as *R. ferrugineus* (EPPO RS 2010/176) was discovered in California (US). The pest was found infesting *Phoenix canariensis* at two locations in Laguna Beach (Orange county). These two locations were close to each other (120 m apart). Collected specimens were initially identified as *R. ferrugineus* but subsequent studies using molecular markers confirmed the presence of *R. vulneratus* which is now considered to be a distinct species from *R. ferrugineus*. Phytosanitary measures were immediately implemented in Laguna Beach to eradicate the pest (destruction of infested palm trees, visual inspections, use of pheromone traps, chemical treatments, information campaign to residents and professionals). The last confirmed detection of a live *R. vulneratus* was made in 2012-01-20. After 3 consecutive years without pest detections, USDA-APHIS officially declared the eradication of the pest (under the name *R. ferrugineus*) from California in 2015-01-20. The cost of the eradication of *R. vulneratus* from Laguna Beach has been estimated at just over a million USD.

Source: Hoddle MS, Hoddle CD, Alzubaidy M, Kabashima J, Nisson JN, Millar J, Dimson M (2016) The palm weevil *Rhynchophorus vulneratus* is eradicated from Laguna Beach. *California Agriculture*. DOI: 10.3733/ca.2016a0012.

NAPPO Phytosanitary Pest Alert System. Official Pest Reports. USA (2015-01-23) *Rhynchophorus ferrugineus* (Red Palm Weevil) - Eradicated from California. <http://www.pestalert.org/oprDetail.cfm?oprID=608>

Pictures: *Rhynchophorus ferrugineus*. <https://gd.eppo.int/taxon/RHYCFE/photos>

Additional key words: eradication, absence

Computer codes: RHYCFE, RHYCVU, US

2016/192 *Xylella fastidiosa* does not occur in Turkey

The NPPO of Turkey officially announced that *Xylella fastidiosa* (EPPO A1 List) is absent from its territory. The possible presence of the bacterium on almond trees (*Prunus dulcis*) in 7 orchards had been reported in a scientific paper (Güldür, 2005). Following the publication of this paper, the situation has been extensively investigated by the Turkish NPPO. As a result, the following points were highlighted: 1) the diagnosis made in 2005 was based only on DAS-ELISA and not confirmed by PCR tests; 2) at locations mentioned in the above paper, all suspicious almond trees had been destroyed and in subsequent surveys (visual inspection and testing) the bacterium was not detected; 3) since the publication of this paper, no further detections have been made in Turkey. The NPPO concludes that *X. fastidiosa* should be considered as absent from Turkey.

The situation of *Xylella fastidiosa* in Turkey can be described as follows: **Absent, confirmed by survey.**

Source: Güldür ME, Çağlar BK, Castellano MA, Ünlü L, Güran S, Yılmaz MA, Martelli GP (2005) First report of almond leaf scorch in Turkey. *Journal of Plant Pathology* 87(3), p 246.

NPPO of Turkey (2016-10).

Also available from the IPPC website:

https://www.ippc.int/static/media/files/pestreport/2016/10/06/Turkey_Declaration.pdf

Additional key words: absence, denied record

Computer codes: XYLEFA, TR

2016/193 Situation of *Xylella fastidiosa* in France

As of 2016-09-29, 302 outbreaks of *Xylella fastidiosa* (EPPO A1 List) have been recorded in France: 287 are located on the island of Corsica and 15 in Southern France (Alpes-Maritimes and Var departments). Since the first detection of the bacterium in July 2015 (EPPO RS 2015/144), 8 500 samples from Corsica have been tested and 8% were found to be positive. All positive samples have been collected from ornamental plants, and a majority from *Polygala myrtifolia* (64%). On the mainland, 1 500 samples have been collected and 3% were found to be positive. Similarly, the majority of positive samples have been collected from *P. myrtifolia* but also from *Spartium junceum* and *Lavandula angustifolia*. Additional molecular studies have been conducted by INRA and ANSES on positive samples which had been collected in 2015. Results showed that most isolates belonged to *X. fastidiosa* subsp. *multiplex* with the exception of a single outbreak located in Menton (Alpes-Maritimes) where *X. fastidiosa* subsp. *pauca* was identified. However, further surveys have been carried out in 2016 in Menton, and *X. fastidiosa* subsp. *pauca* could no longer be detected.

Source: Anonymous (2016) Actus. *Xylella fastidiosa*. *Phytoma* no. 697, p 4.

Pictures: *Xylella fastidiosa*. <https://gd.eppo.int/taxon/XYLEFA/photos>

Additional key words: detailed record

Computer codes: XYLEFA, FR

2016/194 Updated situation of 'Candidatus Liberibacter solanacearum' in Sweden

The NPPO of Sweden recently provided the EPPO Secretariat with more details about the first report of 'Candidatus Liberibacter solanacearum' (the potato haplotypes are listed in EPPO A1 List) on its territory (EPPO RS 2012/119). 'Ca. L. solanacearum' was first found in 2011 in commercial fields of carrots (*Daucus carota*) in the county of Halland (Southern Sweden). During 2011, 33 ha of carrot fields were investigated and approximately 70% of the investigated area showed symptoms of 'Ca. L. solanacearum'. In these fields, the disease incidence ranged from 1 to 45%. It is recalled that the disease is transmitted by the carrot psyllid (*Trioza apicalis*) which is widespread in Europe. In the county of Halland, symptoms had been observed in carrot fields for several years but the identity of the pathogen was confirmed by molecular tests (PCR) in 2011 in carrot and psyllid samples. Additional sampling has been carried out in the counties of Halland and Skåne, but testing results are not yet available. The source of this outbreak is unknown. No official phytosanitary measures were taken.

The pest status of 'Candidatus Liberibacter solanacearum' in Sweden is officially declared as: **Present, only in a limited part of Sweden.**

Source: NPPO of Sweden (2016-10).

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

Additional key words: detailed record

Computer codes: LIBEPS, SE

2016/195 First report of *Dothistroma septosporum* in Sweden

Dothistroma septosporum (teleomorph: *Mycosphaerella pini* - EU Annexes) was first found in Sweden in 2007 in *Pinus sylvestris* and until recently, its geographical distribution was considered to be limited. According to a recent study carried out by the Swedish University of Agricultural Sciences entitled '*Dothistroma* needle blight on *Pinus sylvestris* and *Pinus contorta* under Nordic conditions using the method of DNA-sequencing' (doctoral thesis by H. Millberg, 2015), *D. septosporum* is now widely spread in pine forests on *P. sylvestris* and *P. contorta*. The fungus has been detected at several sites ranging from Fredrika (Västerbotten county, Northern Sweden) to Vaggeryd (Jönköping county, Southern Sweden). However, there are no indications that the disease is causing severe outbreaks in Sweden, contrary to the situation reported from other parts of the world. It is supposed that the cold climate prevailing in Sweden does not favour the disease. As *D. septosporum* is already present in neighbouring countries and natural spread is considered to be the most important pathway, no phytosanitary measures have been applied.

The pest status of *Dothistroma septosporum* in Sweden is officially declared as: **Present, in all parts of the area concerned.**

Source: NPPO of Sweden (2016-10).

Pictures: *Dothistroma septosporum*. <https://gd.eppo.int/taxon/SCIRPI/photos>

Additional key words: new record

Computer codes: SCIRPI, SE

2016/196 *Phytophthora ramorum* found in Baden Württemberg and Niedersachsen, Germany

The NPPO of Germany recently informed the EPPO Secretariat of the detection of *Phytophthora ramorum* (EPPO A2 List) in two areas in Germany.

- **Baden Württemberg**

P. ramorum has recently been found on a *Rhododendron* hillside in a botanical garden. At this location, the pathogen has been found intermittently in the last few years and samples have been collected annually from plants and soil. In October 2016, *P. ramorum* was detected again in plant and soil samples. Affected *Rhododendron* plants showed leaf and twig dieback. The NPPO of Germany considered that eradication was no longer possible at this location but official measures to contain the disease were taken. The movement of host plants from the botanical garden is prohibited and the botanical garden shop is not allowed to sell *Rhododendron* or any other susceptible host plants.

- **Niedersachsen**

In May 2016, *P. ramorum* was detected in a nursery on *Gaultheria procumbens*. This is the first time that the pathogen is found on this host in Germany. *P. ramorum* was detected in a symptomatic sample (leaves and twigs) using molecular tests (PCR, real-time PCR). Phytosanitary measures were implemented to eradicate *P. ramorum* and concerned in total 280 000 infested (symptomatic) and potentially infested (asymptomatic) plants. All symptomatic plants have been destroyed. On potentially infested plants, fungicides treatments and hygiene measures have been applied. Intensive inspection and testing will be performed to verify the health status of the remaining plants.

The pest status of *Phytophthora ramorum* in Germany is officially declared as: **Present, few occurrences.**

Source: NPPO of Germany (2016-10).

Pictures: *Phytophthora ramorum*. <https://gd.eppo.int/taxon/PHYTRA/photos>

Additional key words: detailed record

Computer codes: PHYTRA, DE

2016/197 First report of maize lethal necrosis in Ecuador

Maize lethal necrosis is an emerging disease of maize (*Zea mays*) crops in Africa (EPPO RS 2015/147) which is caused by a combination of *Maize chlorotic mottle virus* (*Machlomovirus*, MCMV) and either a maize-infecting Potyviridae, such as *Sugarcane mosaic virus* (*Potyvirus*, SCMV), *Maize dwarf mosaic virus* (*Potyvirus*, MDMV), or *Wheat streak mosaic virus* (*Tritimovirus*, WSMS). In addition to Africa, maize lethal necrosis disease has been observed in Yunnan province in China. In South America, symptoms of maize lethal necrosis had not been observed until recently, although SCMV has been documented as early as 1914 and the earliest reports of MCMV date back to the 1970s in Peru and Argentina, and later in Colombia. Since 2013, severe virus-like symptoms have been reported in Ecuador, in the two major maize-producing provinces of the country (Manabí and Los Ríos). Affected maize plants showed symptoms of severe mosaic, chlorosis, and in some cases, necrosis. In May 2015, samples were collected from symptomatic maize plants and tested. Molecular analysis revealed the presence of SCMV and MCMV, two components of maize lethal necrosis. This is the first time that maize lethal necrosis is reported from Ecuador and from South America.

Source: Quito-Avila DF, Alvarez RA, Mendoza AA (2016) Occurrence of maize lethal necrosis in Ecuador: a disease without boundaries? *European Journal of Plant Pathology* 146(3), 705-710.

Xie L, Zhang J, Wang Q, Meng C, Hong J, Zhou X (2010) Characterization of *Maize chlorotic mottle virus* associated with maize lethal necrosis disease in China. *Journal of Phytopathology* 159, 191-193.

Additional key words: new record

Computer codes: MCMV00, MDMV00, SCMV00, WSMV00, EC

2016/198 *Broussonetia papyrifera* in the EPPO region: addition to the EPPO Alert List**Why**

Broussonetia papyrifera (Moraceae) is a small to medium size deciduous tree species native to East Asia and reported as invasive in Africa, parts of North America (Tennessee), parts of South America, Pakistan, and parts of the EPPO region.

EPPO Region: Austria, Bulgaria, Croatia, France, Georgia, Italy, Spain, Russia, Ukraine.

Africa: Ghana, Tanzania, Uganda.

Asia: China (native), India, Indonesia, Japan (native), DPR Korea (native), Republic of Korea (native), Malaysia, Pakistan, Taiwan (native), Thailand (native).

North America: USA (Alabama, Arkansas, Connecticut, Florida, Georgia, Hawaii, Illinois, Kentucky, Kansas, Louisiana, Maryland, Massachusetts, Mississippi, Missouri, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia).

South America: Argentina.

Oceania: Australia, Samoa, Solomon Islands, Tonga.

Morphology

B. papyrifera is a deciduous tree growing up to 15 m tall. The bark is light grey and smooth with shallow fissures or ridges. Leaves are simple, alternate and 8-20 cm long and variable in shape (unlobed, ovate cordate to deeply lobed, with lobed leaves more frequent on fast-growing young plants). The upper surface of leaves is rough touch with the soft underside. The species is dioecious and male flowers appear yellowish white and are arranged in an elongated inflorescence. Female flowers are arranged in a round inflorescence. Fruits are red to orange/yellow and 1-4 cm in diameter.

Biology and ecology

B. papyrifera is a fast growing species capable of growing 3-4 metres in the first 6 months. It requires well-drained soils. *B. papyrifera* is wind and insect pollinated and seeds have a germination rate of 50 % or less in moist soils. The plant readily regenerates from cut stems, and root suckers adding to its ability to quickly colonise habitats even when the plant is cut back.

Habitats

B. papyrifera can tolerate a wide range of climatic conditions which enables the species to flourish in tropical and temperate climates. It can grow in areas with an annual rainfall of 700-2 500 mm. *B. papyrifera* does not grow well under full shade and is suited to disturbed habitats, in particular to riparian habitats and gaps within subtropical forests. In Hawaii (US), it is found growing alongside streams. In Pakistan, the species thrives in degraded scrub land occupied by other invasive alien plants (for example *Lantana camara*). In Bulgaria, *B. papyrifera* grows in the warmer regions in damp soil close to waterways.

Pathways for movement

B. papyrifera has been introduced into new regions mainly as an ornamental species or for fuel-wood, cloth, paper, pulp or fodder. The bark of *B. papyrifera* has been used for almost 1 500 years to make paper. In Islamabad, Pakistan, the species was widely planted to 'green' the city.

Impacts

B. papyrifera can form dense stands which displace native vegetation, retard forest regeneration and water availability. In the Margalla Hills National Park in Pakistan, *B.*

papyrifera has invaded large areas outcompeting native plant species. In Ghana, it has invaded forests and spread into farmland where it competes with crop species for water. In Islamabad, Pakistan, *B. papyrifera* has been shown to exacerbate asthma due to the vast quantities of allergenic pollen flowers produce.

Control

Due to the vigorous regrowth from cut stumps, vegetative root regeneration and seed dispersal, control using traditional methods is both labour intensive and costly with repeated applications needed to achieve a restored habitat. Manual removal (uprooting) and cutting coupled with an application of systemic herbicides have been shown to be effective in controlling shrub forms of the plant. There are currently no known biological control agents for this species.

- Source: Bosu PP, Apetorgbor MM (undated), *Broussonetia papyrifera* in Ghana: its invasiveness, impact and control, Food and Agriculture Organization of the United Nations, <http://www.fao.org/forestry> [accessed 23 August 2016]
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- Van Valkenburg J, Brunel S, Brundu G, Ehret P, Follak S, Uludag A (2014) Is terrestrial plant import from East Asia into countries in the EPPO region a potential pathway for new emerging invasive alien plants? *EPPO Bulletin* 44, 195-204.

Additional key words: invasive alien plants, alert list

Computer codes: BRNPA

2016/199 Benefits and costs of controlling allergenic invasive alien plants in central Europe

Climate change will potentially increase the negative impacts of invasive alien plants as areas suitable for establishment will increase. For three non-native Asteraceae species, *Ambrosia trifida* (EPPO List of Invasive Alien Plants), *Artemisia annua* and *Iva xanthiifolia*, increased impacts due to climate change may have profound impacts on human health (all three species are reported to cause allergenic reactions in humans) and agriculture. The future spread of all species was modelled under different climate change (a moderate scenario of +1.5 °C and a severe scenario of +2.4°C), management and spread scenarios to the year 2050. Under both climate change scenarios, spread increased for all species combined, but was more significant under the severe scenario. When applying management costs and associated benefits (savings in costs to human health and agriculture) to the predicted spread of the species, it was shown that early intervention yielded substantial savings. Under the moderate climate change scenario, net savings ranged from 19 to 582 million EUR whereas up to 1 063 million EUR may be saved under the severe climate change scenario. Such large figures highlight the benefits of managing these three invasive alien plants in Central Europe.

Source: Plank L, Zak D, Getzner M, Follak S, Essl F, Dullinger S, Kleinbauer I, Moser D, Gattringer A (2016) Benefits and costs of controlling three allergenic alien species under climate change and dispersal scenarios in Central Europe. *Environmental Science and Policy* 56, 9-21.

Additional key words: invasive alien plants, impacts

Computer codes: AMBTR, ARTAN, IVAXA

2016/200 Management success of three invasive alien plant species in a Central European National Park

The protected areas of Europe are often a refuge for rare and endangered animal and plant species playing an important role in nature conservation throughout the region. This is especially relevant when consideration is given to the long history of human intervention on the landscape. However, protected areas are vulnerable to invasion by invasive alien plants and as a result significant resources are allocated to their management and control in such areas. In the Thayatal-Podyjí National Park (which runs along the Austrian-Czech border), *Fallopia x bohemica* (Polygonaceae, EPPO List of Invasive Alien Plants), *Impatiens glandulifera* (Balsaminaceae, EPPO List of Invasive Alien Plants) and *Robinia pseudoacacia* (Fabaceae) have been subject to management measures since 2001. Surveys, conducted in 2001 and 2010, have shown that the distribution of each species has changed over time and when coupled with data on management, it is possible to attain an understanding on the effectiveness of management effort for each species. From 2001 to 2010 management effort per hectare was highest for *F. x bohemica* (2 657 hours), followed by *R. pseudoacacia* (1 473 hours) and *I. glandulifera* (270 hours). However, even with the highest effort, *F. x bohemica* has become more widespread whereas the area covered by *I. glandulifera* and *R. pseudoacacia* has decreased. Due to the extensive root system and the ability to regenerate from small rhizome fragments, *F. x bohemica* could be regarded as the more difficult species to manage; however, all three species come with management complications. A systematic approach for monitoring the efficacy of management efforts in protected areas is recommended.

Source: Schifflerthner V, Essl F (2016) Is it worth the effort? Spread and management success of invasive alien plant species in a Central European National Park. *Neobiota* 31, 43-61.

Additional key words: invasive alien plants, management

Computer codes: IPAGL, REYBO, ROBPS, AS, CZ

2016/201 Mycorrhizal status helps explain invasion success of alien plant species

Mutualistic interactions between invasive alien plants and mycobiota, and their influence on invasion success have received increased attention in recent years. However, even with an increase in publications, data remains conflicting. Some studies show that invasive alien plants are more likely to have associated mycorrhizal fungi in one region compared to other studies showing the opposite. Such differences are replicated in the literature and hence there is an ongoing debate to whether alien plant species benefit from being mycorrhizal or if it constrains their establishment and spread. To evaluate if the relative frequency of different mycorrhizal status (obligate, facultative or non-mycorrhizal) differed between groups of neophytes, archaeophytes and native species, plant distribution data were obtained from the 2003 version of FLORKART database in Germany. Information on the mycorrhizal status of each species was collected from the MycoFlor database. Neophyte

species at different stages of invasion showed no difference in mycorrhizal status. However, casual and naturalised neophytes were more likely to have an obligate mycorrhizal status compared to archaeophytes and native species. Neophytes with a facultative mycorrhizal status had a greater distribution than non-mycorrhizal neophytes, with the same seen with plants with an obligate mycorrhizal status, but to a lower effect. These results show that mycorrhizal status promotes invasion success in neophytes in Germany.

Source: Menzel A, Hempel S, Klotz S, Moora M, Pyšek P, Rillig MC, Zobel M, Kühn I (2016) Mycorrhizal status helps explain invasion success of alien plant species. *Ecology*, DOI: 10.1002/ecy.1621

Additional key words: invasive alien plants, biology

Computer codes: DE