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CONTENTS

2000/001 The situation of *Liriomyza sativae* is unconfirmed in Israel

In EPPO RS 99/151, it was reported that *Liriomyza sativae* (EPPO A1 quarantine pest) was found in Israel during a survey and that specimens were being sent to the Natural History Museum in London (GB) for confirmation. It may be recalled that this survey was initiated by interceptions of *L. sativae* by France in six plant consignments imported from Israel (see EPPO RS 99/164, 99/183). However, the Natural History Museum has identified the Israeli specimens as *L. bryoniae* (not previously known in Israel). The NPPO of Israel stressed that the record of *L. sativae* should be considered for the moment as unconfirmed. Surveys will continue and suspect findings will also be sent to France for identification. If suspect leaf miners are found on Israeli consignments, the NPPO of Israel ask EPPO member countries to notify immediately and also to send leaf miner samples (of any stage).

Source: NPPO of Israel, 1999-12.

Additional key words: unconfirmed record **Computer codes:** LIRISA, IL

2000/002 Weeds as potential quarantine pests

The Panel on Phytosanitary Measures is currently discussing the potential quarantine status of weeds, the following species were proposed as potential candidates and are therefore added to the EPPO Alert List: *Ambrosia artemisiifolia*, *Acroptilon repens*, *Striga lutea*, *S. hermonthica* and *S. gesnerioides*.

Ambrosia artemisiifolia (Asteraceae) - common ragweed

Why	The Panel on Phytosanitary Measures is currently discussing the potential quarantine status of weeds, and *Ambrosia artemisiifolia* was retained as a potential candidate.
Where	It is native to North America and has spread from there to many other areas in the world (except perhaps Africa). **Europe**: Austria, Belgium, Croatia, Czechia, France, Germany, Hungary, Italy, Lithuania, Luxemburg, Moldova, Poland, Portugal, Romania, Russia (Krasnodar territory), Slovakia, Sweden, Switzerland, Turkey, UK, Ukraine, Yugoslavia (at least Serbia). **Asia**: Azerbaijan, China (Yangtze river valley, Liaoning), Japan, Kazakhstan, India, Korea, Russia (Primorski territory), Taiwan, Turkey. **Africa**: Mauritius. **North America**: Canada (in all provinces, but most common in southern Quebec and Ontario, very rare in British Columbia and Newfoundland, uncommon in prairie provinces and provinces of the Atlantic coast), Mexico, USA (eastern, north central states, Hawaii). **Central America & Caribbean**: Cuba, Guadeloupe, Guatemala, Jamaica, Martinique. **South America**: Argentina, Bolivia, Brazil, Chile, Colombia, Paraguay, Peru, Uruguay. **Oceania**: Australia, New Zealand.
On which crops	*A. artemisiifolia* can infest practically all field crops (cereals, maize, soybean, sunflower, rootcrops, etc.), meadows, pastures, orchards and vineyards, and also rangeland. However, it is commonest along waterways, roads, railways and in wasteland.

Dissemination	Fruits of *A. artemisiifolia* are dispersed by birds, melting snow, waterways and strong winds. Seeds of *A. artemisiifolia* are dispersed through exchanges of contaminated seed lots, forage and fodder.
Damage	*A. artemisiifolia* is an annual weed which competes strongly with crop plants for water and nutrients. It is very prolific (one plant may develop 30,000 - 40,000 seeds and up to 100,000); seeds remain viable for 5-14 years). It can seriously reduce yields of cereals and other field crops (e.g. sunflower), and causes problems in harvesting. Its presence greatly reduces fodder quality of meadows and pastures (*A. artemisiifolia* is not palatable to livestock), and taints diary products if cattle do feed on it. In addition, its pollen is strongly allergenic in man (hay fever) and can cause dermatitis on contact.
Pathway	Contaminated seed lots, forage and fodder, soil and growing media, soil attached to plants.
Possible risks	*A. artemisiifolia* is a serious weed mainly because of its prolific seed production. It has already shown a great potential for spread and it is regularly found on consignments of seeds. Once established in an area, it is difficult to control. *A. artemisiifolia* is apparently not present in all countries of the EPPO region, and it could present a risk to countries where it is still absent (except perhaps in northern countries where low temperatures may prevent its development).

Source(s)

Draft EPPO Data Sheet.

Pest Risk Analysis on *Ambrosia* spp. for Poland prepared by W. Karnkowski, 1999.

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<u>*Acroptilon repens* (Asteraceae) - Russian knapweed, creeping knapweed</u>

Why	The Panel on Phytosanitary Measures is currently discussing the potential quarantine status of weeds, and *Acroptilon repens* was retained as a potential candidate.
Where	*A. repens* is native to Central Asia and has spread from there to many other areas. **Europe**: Russia (Volgograd, Rostov, Saratov and Orenburg provinces, Stavropol territory, Kalmykia), Ukraine (south). **Asia**: Afghanistan, Armenia, China (eastern), Georgia (north), India, Iraq, Iran, Kazakhstan, Kyrghystan, Mongolia, Syria, Tajikistan, Turkey, Turkmenistan, Uzbekistan. **Africa**: South Africa. **North America**: Canada (widely distributed in Alberta, Manitoba, Satskatchewan, common in British Columbia, present in Ontario), USA (most common in the semi-arid western states, present in 21 states). **South America**: Argentina. **Central America & Caribbean**: Trinidad. **Oceania**: Australia.
On which crops	All sown crops may be infested, but *A. repens* is confined to areas with a warm, dry climate, with annual precipitation up to 400 mm. It is not a weed of intensive agriculture in temperate climates or under irrigation. Its persistence and colonial habit can also cause problems in orchards, vineyards, pastures or roadsides.

Damage	*A. repens* is a perennial weed, reproducing by seeds and by rhizomes which strongly compete with crops for water and nutrients. Plants are poisonous for many animals (especially horses, but not sheep and goats).
Dissemination	*A. repens* seeds are carried with harvested seeds of many herbaceous crops, particularly cereals, and also with hay and straw. Locally, the dried fruiting heads can be carried from infested fields by water courses.
Pathway	Contaminated seed lots (especially cereals), fodder (especially hay and straw), soil and growing media, soil attached to plants.
Possible risks	*A. repens* is an invasive weed which continues to spread in areas where it occurs. Its control is difficult (cultural practices are not effective, chemical control is difficult). However, in the EPPO region most areas are unsuitable for its development (i.e. northern and western Europe). It could present a risk for the Mediterranean region and Central Europe.
Source(s)	Draft EPPO Data Sheet. Frankton, C;; Mulligan, G.A. (1993) Weeds of Canada, Publication 948, Agriculture Canada, 217 pp. Holm, L.G.; Pancho, J.V.; Hergerger, J.P.; Plucknett, D.L. (1991) A geographical Atlas of world weeds, Krieger publishing Company, Malabar, Florida (US), 391 pp. Reed, C.F. (1977) Economically imported foreign weeds. Potential problems in the United States, Agriculture Handbook no. 498, USDA, Washington, USA, 746 pp. INTERNET *Acroptilon repens*. Southwest exotic plant mapping program. http://www.usgs.edu/swemp/Info-pages/plants/Acroptilon/Russianknapweed.html Element stewardship abstract for *Acroptilon repens*. the nature Conservancy. http://tncweeds.ucdavis.edu/esadocs/documnts/acrorep.html North American Russian knapweed (*Centaurea repens*) inventory. http://w3.uwyo.edu/~caps/rkinventory/rkinv.htm
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<u>*Striga* spp. (Scrophulariaceae) - witchweeds</u>

Why	The Panel on Phytosanitary Measures is currently discussing the potential quarantine status of weeds, and *Striga lutea, S. hermonthica* and *S. gesnerioides* were retained as potential candidates.
Where	*Striga lutea* **Asia**: Bangladesh, Cambodia, China, India, Indonesia, Japan, Malaysia, Myanmar, Oman, Pakistan, Philippines, Saudi Arabia, Singapore, Sri Lanka, Thailand, Viet Nam. **Africa**: Angola, Benin, Botswana, Burkina Faso, Cameroon, Comoros, Congo, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Nigeria, Réunion, Rwanda, Senegal, Seychelles, Sierra Leone, Sudan, South Africa, Swaziland, Tanzania, Togo, Uganda, Zaire, Zambia, Zimbabwe. **North America**: USA (North Carolina, South Carolina). **Oceania**: Australia, New Zealand, Papua New Guinea. *Striga hermonthica* **Asia**: Cambodia, Saudi Arabia, Yemen. **Africa**: Angola, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Egypt, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Mali, Mauritania, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zaire, Zambia, Zimbabwe. *Striga gesnerioides* **Asia**: Cambodia, India, Japan, Saudi Arabia, Sri Lanka, Yemen. **Africa**: Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Chad, Congo, Egypt, Ethiopia, Ghana, Guinea, Kenya, Malawi, Mali, Mauritania, Morocco, Mozambique, Niger, Nigeria, Senegal, South Africa, Sudan, Togo, Zaire, Zambia, Zimbabwe. **North America**: USA (Florida) **Oceania**: Australia

On which crops	*Striga lutea*: Poaceae, especially maize, sorghum, rice and sugarcane, but also sometimes on wheat and barley. Wild plants and weeds of the following genera: *Digitaria*, *Echinochloa*, *Imperata*, *Paspalum*, *Pennisetum*, *Sorghum.* *Striga hermonthica*: Poaceae, especially sorghum but also maize, *Panicum*, *Setaria*, sugarcane. *Striga gesnerioides*: especially on cowpea and tobacco. Also on numerous plants of the Poaceae, Fabaceae and Convolvulaceae.
Damage	*Striga lutea* and *S. hermonthica* are annual hemi-parasites of monocotyledones, *S. gesnerioides* is a full parasite of dicotyledons. Greatest damage is done in the first month of vegetative growth, when the fully parasitic young witchweeds have not yet emerged. The host plant wilts, its growth is stunted and it may shrivel and die. Yield losses can reach significant levels (up to 100%).
Dissemination	As seeds are very small they are easily dispersed by wind, water, animals, etc. Seeds can also contaminate harvested products, or be moved in soil by machinery etc. Seeds are very difficult to detect as contaminants of seed lots (microscopic examination is needed).
Pathway	Contaminated seed lots, fodder, soil and growing media, soil attached to plants.
Possible risks	Witchweeds are essentially tropical pests, but *S. lutea* has been found in North and South Carolina (US) and has been able to maintain populations. The potential for establishment in the EPPO region of *Striga* spp. remains unclear. Regions with a relatively mild dry winter (Black Sea area, eastern Mediterranean region, North Africa) may be suitable for weed development. Chemical control is available, and research is being done on the use of resistant cultivars.

Source(s):

Draft EPPO Data Sheet.
Banda, E.A.K.; Morris, B. (1985) Common weeds of Malawi. Montfort Press, Malawi, 176 pp.
CABI Crop Protection Compendium, 1999.
Ivens, G.W. (1993) East African weeds and their control (new edition). Oxford university Press, Nairobi, 288 pp.
Holm, L.G.; Pancho, J.V.; Hergerger, J.P.; Plucknett, D.L. (1991) A geographical Atlas of world weeds, Krieger publishing Company, Malabar, Florida (US), 391 pp.
Parker, C.; Riches, C.R. (1993) Parasitic weeds of the world: biology and control. CABI, Wallingford, UK, 332 pp.

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Panel review date - Entry date 2000-01

2000/003 Addition of pepino mosaic potexvirus to the EPPO Alert List

Pepino mosaic potexvirus was first described in Peru by Jones *et al.* in 1980 on pepino (*Solanum muricatum*), a South American crop producing large aubergine-like edible fruits. This new virus was found in the Canete valley in coastal Peru causing a yellow mosaic in young leaves of pepino. Affected pepino plants were also contaminated by the Andean strain of potato S carlavirus. Pepino mosaic potexvirus has filamentous particles with an average length of 508 nm. The experimental host range is narrow. The virus could be mechanically transmitted to 30 species out of 32 of Solanaceae species tested (including potato, tomato and tobacco), to *Tetragonia expansa* (Aizoaceae, no systemic infection) and to *Cucumis sativus* (Curcurbitaceae, no systemic infection). It failed to infect 13 species in 6 other families. The virus caused mild mosaic or symptomless infection in 12 wild potato species and in several potato cultivars, but severe systemic necrotic symptoms on potato cultivars Merpata and Revolucion. Only systemic symptomless infection was obtained in tomato. At this time, no natural infection was found in potato fields in Peru (apparently tomato crops were not studied). During this first study it was shown that pepino mosaic potexvirus is transmitted by plant contact and not by *Myzus persicae*. The virus was not detected again in Peru nor in any other country, until it appeared very recently in the Netherlands and United Kingdom on tomato crops.

Situation in the Netherlands

In January 1999, pepino mosaic potexvirus was discovered in glasshouse tomato plants for the first time in the Netherlands. Affected plants showed yellow spots on the leaves, mild interveinal chlorosis and in some cases minor leaf malformations. Fruits sometimes showed discoloration. The virus was found by approximately 50 tomato growers but not in nurseries. In most cases, growers kept their crops until the end of the season and a normal quantity of fruits was harvested. Fruit discoloration sometimes caused lower grading. According to the Dutch NPPO, for 95 % of the growers, financial loss was estimated to be less than 0.5 %, for the remaining 5 %, losses reached a maximum of 5%. In the information given by the French Embassy, it is however noted that some growers (without further details) who had 70 % of their tomatoes infected had to replace their crops by cucumbers. As potexviruses are usually not transmitted by insects or seeds, persons handling the crops are probably the main factor in spreading the disease within a glasshouse and also between glasshouses. Measures have been taken by the Dutch NPPO to eliminate pepino mosaic potexvirus. Glasshouses where infection was found have been thoroughly cleaned. Strict prophylactic measures will be applied to glasshouses and nurseries. In addition, tomato plants will be visually inspected and samples tested by ELISA. The Dutch NPPO has carried out a Pest Risk Analysis (PRA) for the European Union area, and its conclusion was that pepino mosaic potexvirus did not merit classification as a quarantine pest. So far, the origin of its introduction into the Netherlands is not known.

Situation in United Kingdom

In United Kingdom, in January 1999, samples of tomatoes grown under glasshouse originating from the Netherlands and showing unusual symptoms were sent to CSL by a grower in Kent (south-east England). In September 1999, a second grower in Somerset (south-west England) sent tomato samples with similar symptoms. These tomatoes were grafted plants, grown from Dutch seeds which had been supplied by a UK propagator. Pepino mosaic potexvirus was detected in these samples. Symptoms were characterized by distorted leaf development, with bubbling of the leaf surface and chlorosis. First signs of the disease were an apparent lighter green, spiky or nettle-like 'head' of the plants which had filiform leaves reminiscent of hormone damage. Lower leaves on the plant appeared darker; occasionally yellow chlorotic angular spots were seen. Affected plants were very stunted and distorted. In United Kingdom, growers reported a very rapid development of the disease, spreading along plant rows as well as foci in other parts of the glasshouse. It is felt that the virus can cause significant crop losses if early action is not taken to eliminate infection. The virus can readily be transmitted by contaminated tools, hands, clothing, and direct plant-to-plant contact. It is also transmitted by propagation (grafting, cuttings). Seed transmission (although investigated) appears unlikely. If this virus occurred on outdoor crops, it is likely that it would be transmitted by animals, volunteer plants and possibly weeds. Preliminary inoculation studies to potato cultivars showed that pepino mosaic potexvirus does produce mosaic symptoms on leaves of cultivars Maris Peer, Pentland Dell (Jones *et al*. had only observed symptomless systemic infection on these cultivars) and Charlotte (not previously tested). Molecular data showed that UK and Dutch isolates are identical but present some sequence differences from the Peruvian type strain from pepino. It may be recalled that the pepino type strain did not cause symptoms on tomato (only symptomless systemic infection). The NPPO of UK took measures to eradicate the virus. At one site, the whole crop was destroyed and in the other, the affected area and its surroundings were removed. Tomato crops will continue to be monitored by the official authorities. The UK NPPO has carried out a brief PRA, and suggested that pepino mosaic potexvirus should be added to the EPPO Alert List and that further discussions should take place on whether quarantine measures are justified.

Pepino mosaic potexvirus - a new virus of tomato introduced into Europe

Why	Pepino mosaic potexvirus came to our attention because it was very recently found in Europe for the first time on glasshouse tomatoes, in the Netherlands and in UK. In addition, UK and Sweden suggested that it should be added to the EPPO Alert List. More information was requested by France.
Where	Originally described in Peru on pepino. Found in January 1999 in the Netherlands (in approximately 50 tomato glasshouses) and in United Kingdom in 2 tomato glasshouses (in the south of England).
On which plants	Originally described on pepino (*Solanum muricatum*). It affects glasshouse tomatoes (*Lycopersicon esculentum*) in the Netherlands and UK. Experimental host range includes mostly Solanaceous plants, including potato and tobacco (no data on *Capsicum annuum*, *Solanum melongena*). On potato, symptoms could be obtained with the 'pepino type strain' on *S. tuberosum* cvs. Merpata and Revolucion and with the 'tomato strain' on cvs. Maris Peer, Pentland Dell and Charlotte (but so far, the disease has never been seen in potato crops).
Damage	In Peru, it caused a yellow mosaic in young leaves of pepino. In the Netherlands, affected tomato plants showed yellow spots on the leaves, mild interveinal chlorosis and in some cases minor leaf malformations. Fruits sometimes showed discoloration. It appears that losses were not very significant (only 5% of the growers reported economic losses of less than 5%). In UK, affected tomatoes showed distorted leaf development, with bubbling of the leaf surface and chlorosis. Affected plants were very stunted and distorted. It appears that the disease spreads very rapidly and that the virus can cause significant crop losses, if early action is not taken to eliminate infection.
Transmission	Pepino mosaic potexvirus is transmitted by contact: contaminated tools, hands, clothing, direct plant-to-plant contact, and propagation (grafting, cuttings). Seed transmission is unlikely, as it is generally not observed in potexviruses. The same applies to insect transmission.
Note	Molecular studies showed that the Dutch and UK isolates were identical, but slightly different from the 'pepino type strain'. The pepino type strain only caused systemic symptomless infection on tomato.
Pathway	Plants for planting (including vegetative parts used for propagation) of tomatoes, vegetables?, growing media ? Although, seed transmission appears unlikely more studies are needed to clarify this issue.

Possible risks	Tomato is a major crop in the EPPO region both indoor and outdoor. So far, the disease has only been found under glass but eradication would probably be much more difficult if it was found on outdoor crops. Other Solanaceous crops may be at risk, and in particular potato, as it has been shown that certain cultivars expressed symptoms during inoculation tests. However, natural infections have never been observed in potato crops.
Source(s)	Jones, R.A.C.; Koenig, R.; Lesemann, D.E. (1980) Pepino mosaic virus, a new potexvirus from pepino (*Solanum muricatum*). Annals of Applied Biology, 94, 61-68. Information from the French Embassy in the Netherlands (based on Agrarisch Dagblad 25, 28 and 30 September 1999) NPPO of NL, 1999-12. NPPO of UK, 1999-12.
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Additional key words: new pest **Computer codes:** NL, GB

<u>**2000/004**</u> <u>New data on quarantine pests or pests of the Alert List</u>

By browsing through the literature, the EPPO Secretariat has extracted the following new data concerning quarantine pests.

- **New geographical records**

Tomato spotted wilt tospovirus (EPPO A2 quarantine pest) occurs in Iran. It causes a disease of tomato in Varamin and Shahriar, near Tehran. Review of Plant Pathology, 78(12), p 1167 (8799).

- **Detailed records**

<u>*Aleurocanthus spiniferus*</u> (EPPO A1 quarantine pest) is present in Sichuan, China. Review of Agricultural Entomology, 87(12), p 1573 (11750).

<u>*Claviceps africana*</u> (EPPO Alert List) occurs in Oklahoma (US) on sorghum (Claflin & Ramundo, 1999).

Surveys were conducted in Martinique in 1997/1998 on citrus tristeza closterovirus (EPPO A2 quarantine pest). It was estimated that the average disease incidence is 21 %. Commercial orchards were less infected than citrus trees in private gardens. 20-30 year-old trees and limes showed the highest infection rate (approximately 34 %). Trees grafted on <u>*Citrus volkameriana*</u> showed no symptoms of the virus. Review of Plant Pathology, 78(12), p 1184 (8920).

In South Africa, <u>*Eotetranychus lewisi*</u> (EU Annexes) occurs in Western Cape, Gauteng, Mpumalanga and Northern Province (Smith Meyer & Creamer, 1999).

In Argentina, maize Mal de Rio cuarto fijivirus (EPPO Alert List) was detected in provinces of Tucuman, Cordoba, Santa Fe, Entre Rios, Buenos Aires, la Pampa, San Luis and Rio Negro. Review of Plant Pathology, 78(12), p 1140 (8606).

- **Vectors**

Studies carried out in Minnesota on vectors of *Ceratocystis fagacearum* (EPPO A1 quarantine pest) suggested that the main nitidulid species transmitting the pathogen from diseased to healthy oaks are *Colopterus truncatus* and *C. sayi* (Coleoptera: Nitidulidae) (Juzwik *et al*., 1999). It may be noted that the EU Directive refers only to *Arrhenodes minutus*, *Pseudopityophthorus minutissimus* and *P. pruinosus* as vectors of the fungus.

Source: **EPPO Secretariat, 2000-01.**
Review of Agricultural Entomology, 87(12). December 1999.
Review of Plant Pathology, 78(12). December 1999.

Claflin, L.E.; Ramundo, B.A. (1999) Overwintering survival of *Claviceps africana*, causal agent of ergot disease of grain sorghum.
Phytopathology, 89 (6), Supplement, S16.

Juzwik, J.; Skalbeck, T.C.; Neuman, M.F. (1999) Nitidulid species associated with fresh wounds on red oaks during spring in Minnesota.
Phytopathology, 89 (6), Supplement, S38.

Smith Meyer, M.K.P.; Creamer, C. (1999) Mites (Arachnida: Acari) as crop pests in southern Africa an overview.
African Plant Protection, 5(1), 37-51.

Additional key words: new records, detailed records

Computer codes: ALECSN, CERAFA, CLAVAF, CSTXXX, EOTEL, MAMRCS, TMSWXX, AR, CN, IR, MQ, US, ZA

2000/005 News from the Diagnostic Centre of the Dutch NPPO

The EPPO Secretariat has extracted the following points from the 1997 and 1998 Annual Reports of the Diagnostic Centre of the Dutch NPPO.

Apple proliferation phytoplasma (EPPO A2 quarantine pest) was detected for the first time in nursery trees in summer 1997. The sources of infection could not be traced at that time. In 1998, it was found in a few orchards in the southern part of the country. Strict measures are being taken in these orchards to prevent any further spread.

Cacoecimorpha pronubana (EPPO A2 quarantine pest) was first found in a public garden in the province of Zeeland in 1993. Surveys later showed that the pest is widely distributed in the southern part of the country. In 1997, *C. pronubana* was incidentally found in glasshouses on *Capsicum*. In 1998, it was found in several glasshouses on various hosts: *Alstroemeria*, *Kalanchoe*, *Laurus nobilis*, *Osmanthus*. In some cases heavy infestations were noted.

Impatiens necrotic spot tospovirus (EPPO A2 quarantine pest) was found in 1997 in 15 plant species from the Netherlands and from other countries. It was found for the first time on *Anthurium andraeanum*, *Curcuma longa*, *Saxifraga stolonifera* and *Zantedeschia albomaculata*. At the end of 1998 it was also found in young plants of *Capsicum annuum* cv. Fiesta. Affected plants showed severe stem necrosis, some of the older leaves showed a few irregular necrotic lesions.

In 1996, plum pox potyvirus (EPPO A2 quarantine pest) was found in *Prunus domestica* cv. Jubileum (see EPPO RS 96/194). It was found in 29 orchards out of 43 orchards. In 1997, the virus was found in 16 of the 43 orchards. Eradication measures continued to be applied.

Tomato spotted wilt tospovirus (EPPO A2 quarantine pest) was found in 1997 in 26 different plant species from the Netherlands and from other countries. It was detected for the first time in *Cestrum nocturnum*, *Lysimachia consisti*(?), *L. nummularia*, *Sinningia* and *Zantedeschia aethiopica*. In 1998 it was detected in 37 samples of 16 different ornamentals and vegetables from the Netherlands and other countries. It was found for the first time on *Lycianthes rantonnettii*.

In 1998, *Stephanitis pyrioides* (EPPO Alert List) was found on Azalea bonsai originating from Japan and kept in a nursery in Bleiswijk. This species had established in the Netherlands between 1905 and 1910 on Azalea in Boskoop (province of Zuid-Holland). In 1995, an infestation was observed in a nursery in Vleuten (province of Utrecht).

It is recalled that *Synchytrium endobioticum* (EPPO A2 quarantine pest) was first found in the Netherlands around 1914, and gradually spread in potato-growing regions until the Second World War. In the early 1950s, the disease became such a problem that in the north-eastern part, potato cultivars susceptible to pathotype 1 were forbidden and further phytosanitary measures were taken. Until 1973, these phytosanitary measures were successful. However in 1973, pathotype 2 was found for the first time. In 1991, pathotype 1 was detected in the south-eastern part of the country. So far, only pathotypes 1 and 2 have been found in the Netherlands. At present, results of intensive surveys have showed that *S. endobioticum* occurs in two areas. 24 infected fields (pathotype 2 only) were found in the north-eastern part (province of Drenthe), and 32 infected fields (pathotype 1 only) in the south-eastern part (province of Limburg). Strict phytosanitary measures are being applied, in particular to prevent any further spread.

Xanthomonas axonopodis pv. *dieffenbachiae* (EPPO A1 quarantine pest) was found in 1998 in 8 samples of *Anthurium* originating from 5 places of cut flower production. The bacterium was not detected in any nursery. Eradication measures were taken.

Source: Annual Report 1997, Diagnostic Centre, Plant Protection Service, 135 pp.
Annual Report 1998, Diagnostic Centre, Plant Protection Service, 127 pp.

Additional key words: detailed records

Computer codes: APPXXX, IMNSXX, PLPXXX, STEPPY, SYNCEN, TMSWXX, TORTPR, XANTCI, NL

2000/006 New records or new detailed records on quarantine pests in Argentina, Brazil and Chile

The member countries of COSAVE (Argentina, Brazil, Chile, Paraguay and Uruguay) have recently published their A1 and A2 quarantine lists. In the A2 lists, some details are given about the geographical distribution of pests within the country. The EPPO Secretariat has extracted the following details or new records.

Anastrepha fraterculus (EPPO A2 quarantine pest): Argentina (provinces of Buenos Aires, Rio Negro, Mendoza, San Juan).

Anthonomus grandis (EPPO A1 quarantine pest): Argentina (provinces of Formosa, Corrientes, Misiones)

Bactrocera carambolae (EPPO A1 quarantine pest): Brazil (Oiapoque river in state of Amapá, border with French Guyana). The EPPO Secretariat had previously no data on the presence of *B. carambolae* in Brazil.

Ceratitis capitata (EPPO A2 quarantine pest): Argentina (provinces of Buenos Aires, Rio Negro, Neuquén)

Globodera pallida (EPPO A2 quarantine pest): Chile (province of Petorca in region V).

Globodera rostochiensis (EPPO A2 quarantine pest): Chile (provinces of: Parinacota (region I), El Loa (region II), Huasco (region III), Elqui and Choapa (region IV), Petorca and Quillora (region VI), Comuna San Javier (region VII)).

Gonipterus scutellatus (EPPO A2 quarantine pest): Chile (in the provinces of Los Andes and San Felipe in Region V, Region Metropolitana). The EPPO Secretariat had previously no data on the occurrence of *G. scutellatus* in Chile.

Premnotrypes latithorax (EPPO A1 quarantine pest): Chile (near Putre, north of Chile, in region I).

Ralstonia solanacearum race 3 (EPPO A2 quarantine pest): Chile (region Metropolitana, regions IV, V, VI and VII, and province of Ñuble in region VIII).

Xanthomonas axonopodis pv. *citri* (EPPO A1 quarantine pest): Argentina (provinces of Entre Rios, Misiones, Buenos Aires (north)), Brazil (São Paulo, Minais Gerais, Mato Grosso do Sul, Paraná, Santa Catarina, Rio Grande do Sul).

Xylella fastidiosa (EPPO A1 quarantine pest): citrus variegation chlorosis occurs in Argentina in the province of Misiones. The EPPO Secretariat had previously no data on the occurrence of citrus variegation chlorosis in Argentina.

Source: COSAVE Web site
http://www.cosave.org.py/

Additional key words: new records, detailed records

Computer codes: ANSTFR, ANTHGR, BCTRCB, CERTCA, GONPSC, HETDPA, HETDRO, PREMLA, PSDMSO, XANTCI, XYLEFA, AR, BR, CL

2000/007 Tospoviruses in Argentina

In Argentina damage caused by tospoviruses to vegetable crops were sporadically reported in the past. But since 1994, severe outbreaks have been observed every year in the Provinces of Mendoza and Buenos Aires. The main affected crops are tomato (*Lycopersicon esculentum*), lettuce (*Lactuca sativa*) and capsicum (*Capsicum annuum*). During 1994-95, 100% losses in tomato and lettuce have been reported in several fields. In capsicum, mean loss in production was 40% in Buenos Aires Province. A survey on tospoviruses was carried out from 1994 to 1996 in the Provinces of Mendoza and Buenos Aires. A total of 543 samples of tomato, lettuce and capsicum showing symptoms were collected and tested by DAS-ELISA. In addition, symptomatic ornamentals, other vegetable crops (e.g. celery, potato, spinach) and weeds were tested. The results showed that 3 tospoviruses are present in Argentina: groundnut ringspot tospovirus (found in 222 samples - 40.8 %), tomato spotted wilt tospovirus (EPPO A2 quarantine pest, found in 194 samples - 32.7 %) and tomato chlorotic spot tospovirus (found in 50 samples - 14.7 %). These three viruses were found in vegetable and ornamentals crops, and in weeds. Mixed infections were not found during this particular survey, but were observed in later studies. Tomato spotted wilt tospovirus prevailed in the Buenos Aires Province on tomato, lettuce and protected capsicum. Groundnut ringspot tospovirus prevailed in the Province of Mendoza on tomato and lettuce. During this survey, impatiens necrotic spot tospovirus (EPPO A2 quarantine pest) was not detected. Further studies are still needed in particular in other Provinces of Argentina.

Source: Gracia, O.; de Borbon, C.M.; Granval de Millan, N.; Cuesta, G.V. (1999) Occurrence of different tospoviruses in vegetable crops in Argentina. **Journal of Phytopathology, 147(4), 193-256.**

Additional key words: detailed record **Computer codes:** TMSWXX, AR

2000/008 Corrections to PQR 3.9, Quarantine Pests for Europe, Maps of Quarantine Pests for Europe

The Ministry of Agriculture of Ecuador has informed the EPPO Secretariat that *Elsinoë australis* (EU Annexes) does not occur in Ecuador. The official authorities felt that this record might have arisen from a confusion with the detection in 1986 of the anamorph of *E. fawcettii* (*Sphaceloma fawcettii* var. *fawcettii*) in one sample of citrus.

The British distribution of potato cyst nematodes, *Globodera rostochiensis* and *G. pallida* (both EPPO A2 quarantine pests) is wrongly but not identically recorded in both *Quarantine Pests for Europe* and *Distribution Maps of Quarantine Pests for Europe*. In reality, both these nematodes occur, with limited distribution, in England and Wales, Channels Islands, Scotland and Northern Ireland. Some of these British areas were accidentally omitted in the EPPO/CABI publications.

The record of *Mycosphaerella dearnessii* (EPPO A2 quarantine pest) in South Africa, based on the questionnaire sent by EPPO in 1992, is erroneous. It is stated that this fungus has never been found in South Africa.

The Ministry of Agriculture of Ethiopia informed the EPPO Secretariat that *Phoracantha semipunctata* does not occur in Ethiopia.

After further inquiries, it appears that the record of *Puccinia pittieriana* (EPPO A1 quarantine pest) in Bolivia is erroneous.

As mentioned in EPPO RS 98/024, *Ralstonia solanacearum* race 3, biovar 2 (EPPO A2 quarantine pest) was found on potatoes in Nagasaki, Japan, which is located on the island of Kyushu (not Honshu as appearing in PQR). This will be corrected in the next version of PQR.

Source: Ministerio de Agricultura y Ganaderia, Ecuador, 1999-10.
EPPO Secretariat, personal communication with Prof. Wingfield, Mondi Professor of Forest Pathology, Faculty of Biological and Agricultural Sciences, University of Pretoria, South Africa, 1999-09.
Ministry of Agriculture of Ethiopia, 1999-11.
EPPO Secretariat, 1999-11.

Source: **EPPO Secretariat, 1999-11.**

2000/009 *Ciborinia camelliae* does not occur in Belgium

The NPPO of Belgium has informed the EPPO Secretariat that *Ciborinia camelliae* (EPPO A1 quarantine pest) has never been observed in Belgium (see also EPPO RS 99/155 for the situation in other western European countries).

Source: NPPO of Belgium, 1999-12.

Additional key words: absence **Computer codes:** SCLECA, BE

2000/010 *Tilletia indica* not found in Alabama and Tennessee

As reported in EPPO RS 98/043, it has been concluded that *Tilletia indica* (EPPO A1 quarantine pest) is not present in Alabama and Tennessee (US). These records are now considered as misidentifications with another fungi causing ryegrass bunt which has been identified as a new species *Tilletia walkeri*. This fungi causes a partial bunt on *Lolium perenne* and *L. multiflorum*. An extensive survey of *Lolium multiflorum* in wheat fields was conducted in spring 1997 and 1998 in Georgia, as well as in Alabama and Tennessee. The survey showed that *T. walkeri* is widely present in these States but at very low levels. No teliospores of *T. indica* were found during the survey.

Source: Cunfer, B.M.; Castlebury, L.A. (1999) *Tilletia walkeri* on annual ryegrass in wheat fields in the Southeastern United States.
Plant Disease, 83(7), 685-689.

Additional key words: absence **Computer codes:** NEOVIN, US

2000/011 More details on *Erwinia pyrifoliae*

As already reported in EPPO RS 98/204, a new *Erwinia* species, named *Erwinia pyrifoliae* (EPPO Alert List) was isolated from necrotic Asian pear trees in the Republic of Korea. In 1995, unusual symptoms were observed on Asian pears (*Pyrus pyrifolia* cv. Shingo). Symptoms were characterized by black to brown stripes in the leaf midribs, dark brown leaf spots, necrotic petioles. Necrotic symptoms sometimes extended to large parts of the trees and affected entire branches, blossoms and fruitlets. It has been observed that large numbers of trees in an orchard could show symptoms. But so far, the extent and severity of this disease in Korean orchards is unknown. Bacteria were constantly isolated from necrotic branches. Microbiological, molecular and pathological tests showed that the isolated pathogen belongs to the genus *Erwinia*. It is closely related to *E. amylovora* but distinct from it. Most isolates allowed the verification of Koch's postulate on *P. pyrifolia* seedlings and on slices of immature pear fruits (*P. communis*). Therefore the name *E. pyrifoliae* was proposed. The host range of *E. pyrifoliae* remains to be studied. It is not known whether it is only restricted to *Pyrus*, or if it could infect *Malus* and other Maloidae or Rosaceae. The authors also noted that in recent unpublished molecular studies, isolates of a bacterium found in Japan and previously thought to be *E. amylovora* (although this was denied) were found to be related to *E. pyrifoliae* but distinct from *E. amylovora*.

Source: Rhim, S.L.; Völksch, B.; Gardan, L.; Paulin, J.P.; Langlotz, C.; Kim, W.S.; Geider, K. (1999) *Erwinia pyrifoliae*, an Erwinia species different from *Erwinia amylovora*, causes a necrotic disease of Asian pear trees.
Plant Pathology, 48(4), 514-520.

Additional key words: new pest **Computer codes:** ERWIPY, KR

<u>2000/012</u> <u>More details on potato latent carlavirus</u>

As reported in EPPO RS 99/027, a new virus called potato latent carlavirus (EPPO Alert List) has been reported on potato. In 1992, the Scottish Agricultural Service Agency discovered a symptomless carlavirus in potato germplasm (*<u>Solanum tuberosum</u>* cv. Red LaSoda) imported from USA. This new virus has been purified, further studied and monoclonal antibodies have been developed to detect it specifically. Purified virus particles are straight or slightly curved with a mean size of 690 nm. Potato latent carlavirus has been detected in 7 additional cultivar accessions in the Vancouver Collection of virus-free potatoes (Canada): cvs Pembina Chipper, Pungo (in 1994), Kanona, Red Pontiac (in 1995), Purple Chief, Denali and Tejon in 1996. The virus was not detected in the 270 and 267 cultivars tested in 1997 and 1998, respectively. Field samples from 137 cultivars in the US Varietal Collection were tested in June 1997 and 1998, only the following cultivars: High Plains, Platte and Red LaSoda were positive. The authors felt that potato latent carlavirus has probably been present in Red LaSoda grown in USA and Canada since 1993.

Source: Goth, R.W.; Ellis, P.J.; de Villiers, G.; Goins, E.W.; Wright, N.S. (1999) Characteristics and distribution of potato latent carlavirus (Red LaSoda) virus in North America.
Plant Disease, 83(8), 751-753.

Additional key words: Alert list **Computer codes:** POLXXX

2000/013 Distribution of *Exomala* (*Blitopertha*) *orientalis* in USA

Exomala (*Blitopertha*) *orientalis* (EPPO A1 quarantine pest) is a significant pest of turfgrass in Northeastern USA. Larvae feed on the roots of a large number of plants: many grasses, ornamental and small fruit species (blueberry, cranberry, raspberry, strawberry). To determine the current distribution of *E. orientalis*, a survey was conducted in 20 states (Alabama, Connecticut, Delaware, Georgia, Indiana, Kansas, Kentucky, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, West Virginia) using pheromone traps. 20 to 150 traps were placed per state during 1994 to 1996.
New areas of infestation were found in: Delaware (widespread), Maryland (widespread), Cape Cod and central Massachusetts (widespread), southeastern New Hampshire*, New Jersey (widespread in blueberry plantings), North Carolina (around Asheville), Ohio* (around Painesville on Lake Erie), Virginia* (around Richmond and Arlington).
Some insects were caught in single locations in: Maine*, South Carolina*, Tennessee*, West Virginia*. Further studies are needed in these areas to determine whether *E. orientalis* is established or not.
No beetles were caught in: Alabama, Georgia, Indiana, Kansas, Kentucky.
Because of the patchy distribution and the localized nature of infestations, it is felt that the major means of spread is through movement of nursery stock.

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* New detailed records

Source: Alm, S.R.; Villani, M.G.; Roelofs, W. (1999) Oriental beetles (Coleoptera: Scarabaeidae): current distribution in the United States and optimization of monitoring traps.
Journal of Economic Entomology, 92(4), 931-935.

Additional key words: detailed record **Computer codes:** AMNLOR, US

2000/014 Insects in Macau: new records

Just before Macau returned to China in December 1999, the EPPO Secretariat looked at a publication on insects of Macau and extracted the following data which are new records for Macau:

Maconellicoccus hirsutus (EPPO Alert List) was found on *Hibiscus rosa-sinensis*.

Phyllocnistis citrella was found on *Citrus* spp.

Spodoptera litura (EPPO A1 quarantine pest) was found on a large number of hosts: *Allium fistulosum*, *Brassica*, *Colocasia esculenta*, *Dendranthema*, *Fragaria ananassa*, *Hedychium coronarium*, *Helianthus annuus*, *Hibiscus rosa-sinensis*, *Ipomea batatas*, *Lycium chinensis*, *Mentha arvensis*, *Nelumbo nucifera*, *Raphanus sativus*, *Solanum melongena*, *Solanum tuberosum*.

Stephanitis pyroides (EPPO Alert List) was found on *Rhododendron indicum*.

Source: Pun Wing Wah, de C. Batalha, C.D. (1997) Manual dos Insectos de Macau, Câmara Municipal das Ilhas, Macau, 125 pp.

Additional key words: new records **Computer codes:** PHENHI, PHYNCI, PRODLI, STEPPY, MO

2000/015 *Ralstonia solanacearum* detected in surface water in Egypt

In Egypt, recent studies have shown that *Ralstonia solanacearum* biovar 2 race 3 (EPPO A2 quarantine pest) is present in surface water. The bacterium was identified in both irrigation and drainage canals near infected fields within traditional potato-growing areas in the Nile delta. These areas are known to be infested by the bacterium. Populations could reach up to 10^6 cfu L^{-1}. Samples taken from desert areas were all negative. Weeds were also studied. *Solananum dulcamara* was not found along irrigation canals or Nile branches. All tested samples of *S. nigrum* were negative.

Source: Farag, N.; Stead, D.E.; Janse, D. (1999) *Ralstonia* (*Pseudomonas*) *solanacearum* race 3 biovar 2, detected in surface (irrigation) water in Egypt. **Journal of Phytopathology, 147(7-8), 385-496.**

Additional key words: epidemiology **Computer codes:** PSDMSO, EG

2000/016 *Urtica dioica* is a weed host of *Ralstonia solanacearum*

In the Netherlands, the NPPO has done extensive surveys on the presence of *Ralstonia solanacearum* (EPPO A2 quarantine pest) in surface water, as well as studies on possible infection of weeds in natural conditions. The population dynamics of the bacterium in surface water were monitored in two selected areas, over a 2-year period. In some cases during summer, high bacterial number (up to 10^6 cfu l^{-1}) were observed. Populations decreased during winter. Several weeds were studied: *Bidens frondosa*, *Lycopus europaeus*, *Mentha aquatica*, *Solananum dulcamara* (already considered as a host), and *Urtica dioica* (stinging nettle). During this study, it was found that *U. dioica* could be a natural host of *R. solanacearum* when plants were growing with their roots in contaminated water. The bacterium can live and systemically infect *U. dioica* roots. During glasshouse experiments, it was shown that *R. solanacearum* is pathogenic to *U. dioica* and *S. dulcamara* under high infection pressure and high temperature. This is the first report of *U. dioica* being a potential natural weed host of *R. solanacearum*. The implications of this finding on the epidemiology of the disease need to be further studied.

Source: Wenneker, M.; Verdel, M.S.W.; Groeneveld, R.M.V.; Kempenaar, C.; van Beuningen, A.R.; Janse, J.D. (1999) *Ralstonia* (*Pseudomonas*) *solanacearum* race 3 (biovar 2) in surface water and natural weed hosts: First report on stinging nettle (*Urtica dioica*).
European Journal of Plant Pathology, 105(3), 307-315.

Additional key words: new host plant **Computer codes:** PSDMSO, URTDI

2000/017 Ergot of sorghum in Japan caused by *Claviceps sorghicola*

Sorghum is an important forage crop in Japan (28,000 ha) which is mainly cultivated in the south. Ergot of sorghum (caused by *Claviceps sorghi* or *C. africana* - EPPO Alert List) is a serious disease which recently expanded from Africa and Asia to the Americas and Australia. In Japan, ergot was first observed in Kyushu in 1985 in sorghum crops, and also on Sudan grass (*Sorghum sudanense*). In the 1990s, the disease became more widely distributed and began to cause serious damage. After detailed observations of the Japanese ergot, some significant differences in morphological and biochemical characters were noted with *C. sorghi* and *C. africana*. The ergot of sorghum present in Japan was described as a new species: *Claviceps sorghicola*. It is also noted that ergots caused by *C. sorghi* and *C. africana* mainly occur on male-sterile sorghum and are a problem in F1 hybrid seed production, whereas *C. sorghicola* occurs also in commercial fertile sorghum and Sudan grass.

Source: Tsukiboshi, T.; Shimanuki, T.; Uematsu, T. (1999) *Claviceps sorghicola* sp. nov., a destructive ergot pathogen of sorghum in Japan.
Mycological Research, 103(11), 1403-1408.

Additional key words: new pest **Computer codes:** CLAVAF, JP

2000/018 Further studies on rice stripe necrosis benyvirus in Colombia

Since 1991, a new rice disease has been observed in the Department of Meta, Eastern Plains of Colombia. Symptoms are characterized by death of seedlings, stripes on the leaves and severe plant malformation (including leaf crinkling, hence the Spanish name 'entorchamiento'). By 1994, the disease had spread to most of the rice-producing municipalities of this region, causing yield losses of more than 20 % (see EPPO RS 97/019). The disease was thought to be caused by rice stripe necrosis virus (EPPO Alert List), a virus transmitted by *Polymyxa graminis*, which was previously only reported from West Africa. Further investigations were conducted in Colombia and they confirmed that the disease is indeed associated with rice stripe necrosis virus and the fungus *P. graminis*. Morphological characteristics of the Colombian isolate are similar to those of the African isolate studied. It is felt that rice stripe necrosis virus probably belongs to the new Benyvirus group. It is also observed that this virus is now present in the main rice-growing departments of Colombia (Huila, Tolima, Meta, Casanare, Antioquia, Cordoba, Cundinamarca), and that the distribution in Latin America might be broader than currently known. The authors noted that the main factor responsible for the relatively rapid spread of the disease in Colombia seems to be the shared use of contaminated agricultural machinery by rice growers. This disease is considered as a potential threat to the rice production in Latin America. Once viruliferous fungi invade a cultivated soil, it is virtually impossible to eradicate the virus. Control methods will probably rely on the use of resistant rice cultivars which are currently being developed in West Africa.

Source: Morales, F.J.; Ward, E.; Castaño, M.; Arroyave, J.A.; Lozano, I.; Adams, M.J. (1999) Emergence and partial characterization of rice stripe necrosis virus and its fungus vector in South America.
European Journal of Plant Pathology, 105(7), 643-650.

Additional key words: detailed record **Computer codes:** RISNXX, CO

2000/019 Identification method for *Meloidogyne hapla*, *M. chitwoodi* and *M. fallax*

Meloidogyne hapla is often found associated with *M. chitwoodi* and *M. fallax* (both EPPO A2 quarantine pests). As the three species are difficult to distinguish morphologically, there is a need for simple and reliable identification methods. A method has been studied in France and Netherlands to distinguish between these root-knot nematodes species. The method is using satellite DNA sequences isolated from the 3 nematodes species as probes in dot-blot or squash blot experiments. With this technique, *M. hapla* could be distinguished from the quarantine nematodes *M. chitwoodi* and *M. fallax*, but the latter two species could not be differentiated. The authors concluded that satellite DNA sequences could be useful tools for the identification of *Meloidogyne* populations in the field, for management and quarantine purposes.

Source: Catagnone-Sereno, P.; Leroy, R.; Bongiovanni, M.; Zijlstra, C.; Abad, P. (1999) Specific diagnosis of two root-knot nematodes, *Meloidogyne chitwoodi* and *M. fallax*, with satellite DNA probes.
Phytopathology, 89(5), 380-384.

Additional key words: identification method **Computer codes:** MELGCH, MELGFA

2000/020 Molecular classification of phytoplasmas

Seemüller *et al*. (1998) have recently analysed the similarity of 246 phytoplasma isolates according to various molecular criteria and assigned them to 75 distinguishable taxa (not yet officially recognized as species, but virtually so) in 20 groups. It is interesting to consider the status of various phytoplasmas which are of concern to EPPO:

1) in tomato, tomato big bud phytoplasma is recognized as a 'species'. However tomato big bud disease may also be caused by Maryland aster yellows phytoplasma, by a possible 'species' (Brazilian big bud phytoplasma) in the Western X group, by sunn hemp witches' broom phytoplasma (in Australia) and by clover proliferation phytoplasma (in California, US). Stolbur phytoplasma also causes big bud-like symptoms in tomato.
2) aubergine is infected by Maryland aster yellows phytoplasma (causing dwarf), stolbur phytoplasma, sunn hemp witches' broom phytoplasma (causing little leaf) and clover proliferation phytoplasma (causing little leaf).
3) potato is infected by Maryland aster yellows phytoplasma (causing Tulelake western aster yellows) and by clover proliferation phytoplasma (causing witches' broom). Neither the potato isolate of stolbur (EPPO A2 quarantine pest), nor any of the potato purple top-wilt complex (EPPO A1 quarantine pest) was considered. Isolates may not be available.

4) strawberry is infected by tomato big bud phytoplasma (causing multiplier disease in Florida, US), clover phyllody phytoplasma (causing green petal), Mexican periwinkle virescence phytoplasma (causing green petal), stolbur phytoplasma (causing yellows). The A1 pathogen strawberry witches' broom phytoplasma was not included in the analysis (isolates may not be available).
5) *Prunus* spp. are infected (in North America) by Western X disease phytoplasma and Canadian peach X disease phytoplasma (different 'species'). The phytoplasmas causing peach yellows and rosette (A1 list) are probably members of the same X-disease group but their status is not currently clear. In Europe, *Prunus* spp. are infected by European stone fruit yellows phytoplasma (formerly A2 list), a member of the Apple Proliferation group. Other phytoplasmas found in *Prunus* include: Maryland aster yellows, blueberry stunt, pear decline.
6) apple and pear are infected respectively by apple proliferation phytoplasma and pear decline phytoplasma, distinct 'species' in the Apple Proliferation group. This is one of the few relatively clear-cut associations between pathogen, symptoms and host in the whole analysis. Western X disease phytoplasma and sunn hemp witches' broom phytoplasma have, however, also been found in pear.
7) grapevine is infected in particular by flavescence dorée phytoplasma (in the Elm Yellows group). German flavescence dorée phytoplasma is apparently a different 'species', distinct again from stolbur phytoplasma (which causes bois noir, Vergilbungskrankheit and other yellows). Grapevine is also infected by *Phytoplasma australiense* (causing Australian grapevine yellows), one of the two specifically recognized candidate species, and by Maryland aster yellows phytoplasma and clover yellow edge phytoplasma (causing yellows).
8) olive, for which phytoplasmas have been mentioned in the Alert List, is infected by Maryland aster yellows phytoplasma (causing witches' broom), clover phyllody phytoplasma and a possible olive yellows phytoplasma in the Elm Yellows group.
9) elm is infected by elm yellows phytoplasma and by Maryland aster yellows phytoplasma. The A1 pathogen elm phloem necrosis phytoplasma is not mentioned (it may be synonymous with elm yellows).
10) on citrus, *Phytoplasma aurantifoliae* (A1 list, causing witches' broom of lime) is the principal 'species' mentioned. Sunn hemp witches' broom phytoplasma infects grapefuit in Australia (Marsh grapefruit dieback). Both these phytoplasmas are in the Faba Bean Phyllody group.
11) on palms, four distinct 'species' are recognized: Tanzanian lethal decline phytoplasma, Cape St. Paul wilt phytoplasma, coconut lethal yellowing phytoplasma and Yucatan lethal decline phytoplasma. These form a quite distinct set, in two groups.
12) finally, it may be noted that monocotyledonous plants are hardly mentioned among the hosts of any of the phytoplasmas, so far considered (except the palms under 11). Only the extremely polyphagous Maryland aster yellows phytoplasma has been found in *Allium*, *Alstroemeria*, *Gladiolus* and maize. Phytoplasmas of the Sugarcane White Leaf and Bermuda Grass White Leaf groups infect various Poaceae, most importantly sugarcane and rice, but no dicots.

In conclusion, few of the A1 and A2 phytoplasmas stand up to this analysis. Some should be divided into two or more 'species', others are only forms of other 'species', often widespread in the EPPO region, others have not been considered (possibly because it is difficult to obtain authentic isolates). It is clearly too soon for EPPO to rename its phytoplasmas, but the writing is on the wall. All are likely to be reconsidered as the phytoplasmas are progressively named as species in the genus *Phytoplasma*.

Source: Seemüller, E.; Marcone, C.; Lauer, U.; Ragozzino, A.; Göschl, M. (1998) Current status of molecular classification of the phytoplasmas.
Journal of Plant Pathology, 80(1), 3-26.

Additional key words: taxonomy

2000/021 52nd International Symposium on Crop Protection in Gent

The 52nd International Symposium on Crop Protection will be held on 2000-05-09 at the Faculty of Agricultural and Applied Biological Sciences, University in Gent, Belgium.
Deadline for submission of abstracts is 2000-01-31. The full programme will be available in March 2000.

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Source: **EPPO Secretariat, 1999-10.**

Additional key words: conference