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Reporting

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CONTENTS

96/144 Situation of fireblight in Switzerland

In Switzerland, *Erwinia amylovora* (EPPO A2 quarantine pest) was found for the first time in 1989 (EPPO RS 500/09), in regions along the Rhine. These foci were successfully eradicated. The situation changed in 1994, when a fireblight outbreak was found in a larger region situated South of the town of Baden, 15 km West of Zürich (EPPO RS 94/194). This outbreak could not be fully contained, and in 1995 fireblight appeared in the Eastern part of the country, and was found in six new regions. Contaminated communes are situated in the following cantons: Argau, Luzern, Zug, Schwyz, Zürich, Schaffhausen, Saint-Gallen and Appenzell. An eradication campaign was immediately set up. The paper by Schaub describes this situation and also emphasizes the role of bees in transmitting the disease and the need for restrictions on their movement.

The Plant Protection Service of Switzerland has informed the EPPO Secretariat of the 1996 situation. All foci detected in 1995 have been submitted to an eradication campaign. All plants showing symptoms and plants apparently healthy in the surroundings have been destroyed. When commercial trees were found infected, the entire orchard was destroyed. In 1996, the situation appears rather satisfactory, as infected plants had already been destroyed and weather conditions did not seem favourable to flower infections. Only one small focus (a few pear trees) has been found near Luzern. All regions concerned are still placed under very strict monitoring.

Source: Schaub, L. (1996) Transmission du feu bactérien par les abeilles. **Revue Suisse de Viticulture, Arboriculture, Horticulture, 28(3), p 213.**

Plant Protection Service of Switzerland, 1996-07.

Additional key words: detailed record **Computer codes:** ERWIAM, CH

96/145 *Erwinia amylovora* in ex-Yugoslavia

EPPO records on *Erwinia amylovora* (A2 quarantine pest) in Yugoslavia go back to 1991 before the division of the country. Since then, EPPO was informed that the bacterium occurs in Croatia (RS 96/004) but not in Slovenia, where it is included in the A1 quarantine list (despite the preliminary inclusion in the A2 list mentioned in RS 95/115). Referring back to the publication of Panic & Arsenijenic (1993), the following additional details can be added for other countries of ex-Yugoslavia:

FYR of Macedonia: - present in eastern part in several districts
Bosnia & Herzegovina: - present in the north (district of Bosanska Gradiska)
FR of Yugoslavia: - present in Serbia (north, west, south, Kosovo, Slavonia)

Source: Panic, M.; Arsenijevic, M. (1993) Outbreak, spread and economic importance of fire blight pathogen (*Erwinia amylovora*) in Yugoslavia.
Acta Horticulturae 338, 89-91.

Additional key words: detailed records **Computer codes:** ERWIAM, HR, SL, YU

96/146 EPPO Distribution List of *Erwinia amylovora*

Due to the recent findings of *Erwinia amylovora* (EPPO A2 quarantine organism), in Albania (EPPO RS 96/074), Bulgaria (EPPO RS 95/199), Croatia (RS 96/004), Hungary (RS 96/106), Spain (RS 96/107), Iran (RS 96/043), and new foci in Switzerland (EPPO RS 96/144) it was felt necessary to revise the EPPO Distribution list for fireblight. The distribution list for fireblight is, at current knowledge of the EPPO secretariat as follows:

EPPO Distribution List: *Erwinia amylovora*

EPPO region: Albania, Austria (few reports under eradication, RS 94/172), Bosnia & Herzegovina (potential EPPO country), Belgium, Bulgaria, Croatia, Cyprus (RS 457), Czech Republic (RS 94/046), Denmark, Egypt (potential EPPO country - new outbreaks from 1983, following a much earlier outbreak in 1964 - RS 467), France (except south-east), Germany, Greece (including Crete), Ireland (RS 472), Israel (RS 459), Italy (Emilia-Romagna (RS 95/114), Puglia, Sicilia - RS 511), Lebanon (potential EPPO country - RS 498), Luxembourg, Macedonia (potential EPPO country), Netherlands, Norway (RS 471), Poland, Romania, Slovakia, Spain (one focus, under eradication), Sweden (RS 477), Switzerland (few reports, under eradication), Turkey, UK (RS 484; England), Yugoslavia (Serbia - potential EPPO country). The disease has been officially declared as eradicated in Northern Ireland (UK). In the EPPO RS 95/055, Ukraine states that *E. amylovora* is not present, and denies previous unconfirmed reports.

Africa: Egypt

Asia: Armenia (RS 506/08), China (unconfirmed), Cyprus, India (on rose and therefore dubious), Iran, Israel, Jordan, Lebanon, Korea Republic (unconfirmed), Saudi Arabia (unconfirmed), Turkey, Vietnam (unconfirmed). The situation in Japan needs clarification, but there is some indication that the disease may be present (RS 96/108).

North America: Bermuda, Canada, Mexico, USA.

Central America and Caribbean: Guatemala (unconfirmed).

South America: Colombia (unconfirmed). The record in Chile cited in the first edition of the EPPO data sheet (OEPP/EPPO, 1983) is an error.

Oceania: New Zealand.

This distribution list replaces all previously published EPPO distribution lists for *E. amylovora*.

Source: **EPPO Secretariat, Paris (1996-07)**

96/147 Streptomycin resistance of *Erwinia amylovora* in Israel

Fireblight due to *Erwinia amylovora* (EPPO A2 quarantine pest) was first detected on pear trees in Israel in 1985, and since 1986 streptomycin has been the preferred bactericide for controlling the disease. Strains resistant to streptomycin were found for the first time in a pear orchard in 1991, in the south of Israel. During 1994 and 1995, 45 orchards of pear, apple, loquat and quince from all over the country were sampled and tested for streptomycin resistance. Resistant strains were isolated from 8 sites in the Hadera region (central coastal plain) and from a few orchard in the Golan Heights and Upper Galilee. These results showed that streptomycin resistance is well established in the populations of *E. amylovora* in Israel.

Source: Manulis, S.; Zutra, D.; Ga'ash, D.; Kleitman, F.; Dror, O.; Elisha, S.; David, I.; Rav-David, D.; Zilberstaine, M.; Herzog, Z.; Shabi, E. (1996) Streptomycin resistance of *Erwinia amylovora* in Israel and occurrence of blossom blight in the Autumn.
Abstract of a paper presented at the 17th Congress of the Israeli Phytopathological Society, 1996-02-19/20.
Phytoparasitica, 24(2), p 161.

Additional key words: resistance **Computer codes:** ERWIAM, IL

96/148 New detection method for *Erwinia amylovora*

A sensitive and specific method for the detection of *Erwinia amylovora* (EPPO A2 quarantine pest) has been developed by collaborative work between France and Spain. This method is based on ELISA-DASI enrichment method with monoclonal antibodies. King's B and CCT were used as enrichment media, and it was found that the best enrichment was obtained with King'B in winter and with CCT in summer. The method allows the detection of 10-100 cells of *E. amylovora* per ml, mixed with extracts from pear, apple and pyracantha tissues. It was shown that the method could successfully and specifically detect the bacterium in pure cultures and in naturally infected plant material. When compared with other detection techniques, it was found to be as sensitive as PCR and more sensitive than direct isolation on King's B medium. The authors concluded that the ELISA enrichment method could reliably be used to process large amounts of samples at low cost, and therefore could be a useful tool for quarantine, routine analysis or epidemiological purposes.

Source: Gorris, M.T.; Cambra, M.; Llop, P.; López, M.M.; Lecomte, P.; Chartier, R.; Paulin, J.P. (1996) A sensitive and specific detection of *Erwinia amylovora* based on the ELISA-DASI enrichment method with monoclonal antibodies.
Acta Horticulturae, 441, 41-46.

Gorris, M.T.; Camarasa, E.; López, M.M.; Cambra, M.; Paulin, J.P.; Chartier, R. (1996) Production and characterization of monoclonal antibodies specific for *Erwinia amylovora* and their use in different serological techniques.
Acta Horticulturae, 441, 47-51.

Additional key words: new detection method **Computer codes:** ERWIAM

96/149 Characterization of the sour cherry strain of plum pox potyvirus

So far, cherry trees have been considered as resistant to plum pox potyvirus (PPV - EPPO A2 quarantine pest) infections. Experimental transmission of several isolates of PPV (from plum, peach, apricot) to *Prunus avium* and *P. mahaleb* showed that the virus remained localized to the infection site and became undetectable. However, it has been reported recently from Moldova that sour cherry (*P. cerasus*) was naturally infected with PPV (see EPPO RS 94/143). Infected trees showed characteristic chlorotic ringspot symptoms on leaves and depressions, necrosis and rings on fruit. Studies were carried out on this sour cherry strain using RT-PCR, molecular hybridization, nucleotide sequencing, ultrathin sectioning of infected tissues and graft transmission to different cherry rootstocks. Results showed that this virus is indeed plum pox potyvirus, although the sour cherry strain differs from other known strains of PPV (i.e. PPV-D and PPV-M type strains). The authors felt that the sour cherry strain should be considered as a prototype of a new group, the PPV-C group (cherry group). It was also observed that the virus is systemically distributed in *P. cerasus*, and can be found in infected leaf, bark, root, flower, fruit and seed tissues. PPV was detected by RT-PCR in anthers and pollen of infected trees and the authors stressed that this could be a source of virus dissemination, especially on germplasm material. In transmission experiments, the sour cherry strain was successfully transmitted by chip bud grafting to *P. avium* (sweet cherry) and *P. mahaleb* rootstocks. It can be recalled that natural infection of sweet cherry with PPV has recently been reported from southern Italy (see EPPO RS 94/144). Preliminary results of studies carried out by the authors tend to suggest that PPV from both sweet and sour cherry may represent an undescribed group of PPV. In addition, the sour cherry isolate can be transmitted to plum (*P. domestica*), and therefore appears not to be restricted only to cherry species, but may have the potential to infect other stone fruits. It was also pointed out that the infected cherry material in Moldova came from Russia, where PPV was then detected in sour cherry mother trees. The authors concluded by stressing the need to revise quarantine requirements for plum pox potyvirus, especially to prevent the introduction of PPV through movement of infected cherry germplasm.

Source: Nemchinov, L.; Hadidi, A. (1996) Characterization of the sour cherry strain of plum pox potyvirus.
Phytopathology, 86(6), 575-580.

Additional key words: new host plant **Computer codes:** PLPXXX

96/150 First report of *Matsucoccus feytaudi* in Corsica (FR)

In March 1994, a survey on *Matsucoccus feytaudi* (EU Annex II/B) was carried out in Corsica (FR) using pheromone traps. Twenty-four stands were investigated, in maritime pine (*Pinus pinaster*) plantations and natural forests. Only one pest population of *M. feytaudi* was found in the Pineto forest near Corte (north of Corsica). So far, *M. feytaudi* was thought to be absent from Corsica, which has an EU protected zone status for this pest. The authors wondered whether this population was accidentally introduced from Liguria (IT) or whether the pest was in fact endemic in Corsica.

Source: Jactel, H.; Ménassieu, P.; Burban, C. (1996) Découverte en Corse de *Matsucoccus feytaudi* Duc. (Homoptera: Margarodidae), cochenille du pin maritime.
Annales des Sciences Forestières, 53(1), 145-152.

Additional key words: new record **Computer codes:** MATSFE, FR

96/151 Beet curly top geminivirus is present on *Capsicum annuum* in Oregon (US)

Capsicum annuum has been grown for 4 years as a new crop in the Umatilla County of northeast Oregon (US), and symptoms of viral diseases have been observed. On the basis of symptomatology and serological analysis the following viruses were identified: beet curly top geminivirus (EU Annex II/A1 for non-European isolates), pepper mild mottle tobamovirus and alfalfa mosaic alfamovirus. Beet curly top geminivirus may cause on *Capsicum* symptoms of stunting, chlorosis and mortality. The authors felt that these three viruses could cause serious loses to *Capsicum* in northeast Oregon in the future.

Source: Hamm, P.B.; Jeager, J.R.; MacDonald (1995) Virus diseases of pepper in Northeast Oregon.
Plant Disease, 79(9), p 968.

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

96/152 Weeds naturally infected by beet curly top geminivirus

Studies were carried out in the San Joaquin Valley in California (US), on the incidence of beet curly top geminivirus (EU annex II/A1) in weeds, from May 1993 to February 1995. A dot-blot hybridization technique was used to detect the virus. Results showed that the virus could be found in 14 different plant families (Amaranthaceae, Asteraceae, Boraginaceae, Brassicaceae, Chenopodiaceae, Convolvulaceae, Euphorbiaceae, Fabaceae, Geraniaceae, Malvaceae, Onagraceae, Polemoniaceae, Solanaceae, Zygophyllaceae). Beet curly top geminivirus has been found for the first time in *Ambrosia acanthicarpa*, *Helianthus annuus*, *Epilobium ciliatum*, *Amsinckia menziesii*, *Tribulus terrestris* and a *Gilia* sp. Naturally infected weeds generally showed no symptoms. Infection rates of weeds varied from 2 to 11 %, and are lower than in sugar beet or tomatoe. The collection of infected plants throughout the year suggests that the virus can overwinter in plants and does not need to be reintroduced by vectors (*Circulifer tenellus*) each year in this region.

Source: Creamer, R.; Luque-Williams, M.; Howo, M. (1996) Epidemiology and incidence of beet curly top geminivirus in naturally infected weed hosts.
Plant Disease, 80(5), 533-535.

Additional key words: epidemiology **Computer codes:** BTCTXX

96/153 PCR method to detect both *Xanthomonas axonopodis* pv. *phaseoli* and *Pseudomonas syringae* pv. *phaseolicola* in bean seeds

A rapid and sensitive PCR method to detect at the same time *Xanthomonas axonopodis* pv. *phaseoli* (*X. campestris* pv. *phaseoli* - EPPO A2 quarantine pest) and *Pseudomonas syringae* pv. *phaseolicola* in bean seeds was developed in Canada. This method includes a rapid DNA extraction procedure, with a brief wetting of seeds with a solution of sodium hydroxide. A combination of specific primers is used to detect the two bacteria specifically, other plant pathogenic bacteria tested did not give positive results. This is a sensitive method which can detect as few as 1 infected seed in 10,000 seeds. However, for coloured bean seeds, polyvinylpyrolidone (PVP) has to be added to the extraction buffer to obtain amplification. The authors concluded that their method has a great potential for the detection of these two bacteria in commercial seed lots.

Source: Audy, P.; Braat, C.E.; Saindon, G.; Huang, H.C.; Laroche, A. (1996) A rapid and sensitive PCR-based assay for concurrent detection of bacteria causing common and halo blights in bean seed. **Phytopathology, 86(4), 361-366.**

Additional key words: new detection method **Computer codes:** XANTPH

96/154 Detection of irradiated *Ceratitis capitata*

With the possible withdrawal of methyl bromide, interest has increased in gamma irradiation as a quarantine treatment, in particular against fruit flies. In USA, a minimum dose of 150 Gy was recommended against fruit flies infesting fresh fruits and vegetables. As this treatment does no cause immediate death but prevents completion of development to the adult stage, it is important to develop tests to check that any live fruit fly larva found on a treated commodity has received a sufficient irradiation dose. It has been shown that phenoloxidase activity is reduced by gamma irradiation and that this enzyme has an important role in melanization of insect cuticle. In previous studies carried out on *Anastrepha suspensa* (EPPO A1 quarantine pest), it was observed that insufficiently irradiated larvae, when killed by freezing, rapidly melanize, and that tests could also be applied to measure the phenoloxidase activity (see EPPO RS 94/234). Similar studies were carried out on *Ceratitis capitata* (EPPO A2 quarantine pest) and showed that the observation of melanization after freezing or the measurement of the phenoloxidase activity in *C. capitata* larvae are good, sensitive, and reliable indicators of irradiation treatment. However, both assays have temporal limitation: irradiation must occur before the 3rd instar and sufficient enzyme activity is present only during the 3rd instar. But the authors felt that because only high quality fruit will be treated (no visible infestation at early stage), and because there is a delay between treatment and inspection at the point of entry which allow for the eggs or young stages to proceed to more advanced stages, these assays can be used efficiently for quarantine purposes.

Source: Mansour, M.; Franz, G. (1996) Effect of gamma irradiation on phenoloxidase activity in Mediterranean fruit fly (Diptera: Tephritidae) larvae.
Entomological Society of America, 89(3), 695-699.

Additional key words: quarantine treatment **Computer codes:** CERTCA

96/155 Studies on development rate of *Diabrotica barberi*

Laboratory studies were carried out in USA to determine the development rates and thresholds of immature stages of *Diabrotica barberi* (EPPO A1 quarantine pest), over a wide range of constant temperatures (15, 18, 21, 24, 27, 30, 31.5 °C). Laboratories methods used to maintain the insects at their various stages were similar to those used in previous studies on *Diabrotica virgifera virgifera* (EPPO A2 quarantine pest) done by Jackson and Elliott (1988), to facilitate comparison. Results showed that development from egg to adult was completed at all temperatures, but survival was lower at 15 and
31.5 °C for both males and females. Optimal temperature for growth lies between 18 and 30 °C. The proportion of time spent in each life stage from hatch to adult emergence is independent of sex and was respectively: 15 % for 1st instar, 18 % for 2nd instar, 41 % for 3rd instar and 25 % for pupal stage ; this is similar to data obtained for *D. virgifera virgifera*. Nevertheless, development time between males and females is substantially different, males seem to emerge earlier than females. A developmental threshold of 10.2 °C was established for development from hatch to adult emergence. Development from hatch to adult emergence was faster at 30 °C (28 d) and slowest at 15 °C (98 d). Accumulated degree-days (base 10.2 °C) is ≈525 DD from hatch to adult escape (434 DD was observed for *D. virgifera virgifera*). By adding data provided by other studies for the egg stage, it would take ≈865 DD for adult to emerge in the field. This number is approximately 150 DD shorter than what was found by other authors to obtain adult emergence in the field under fluctuating temperatures. The authors concluded that these data could serve as a basis for prediction models to be used for a better timing of chemical treatments against *D. barberi*.

Sources: Woodson, W.D.; Jackson, J.J. (1996) Development rate as a function of temperature in northern corn rootworm (Coleoptera: Chrysomelidae).
Annals of the Entomological Society of America, 89(2), 226-230.

Jackson, J.J.; Elliott, N.C. (1988) Temperature-dependent development of immature stages of the western corn rootworm, *Diabrotica virgifera virgifera* (Coleoptera: Chrysomelidae).
Environmental Entomology, 17, 166-171.

Additional key words: biology **Computer codes:** DIABLO

96/156 Control of *Anoplophora chinensis* in China

In experiments carried out in China, six insecticides were tested as trunk injections against *Anoplophora chinensis* (EPPO A1 quarantine pest) tunnelling in *Casuarina equisetifolia* in forests in Zhejiang Province (new detailed record). Omethoate and monocrotophos, applied at 5 ml/larval tunnel were 91-100 % effective.

Source: Dai JiShun (1994) [Experiment of injecting pesticides in worm channels to control larva of *Anoplophora chinensis*]. **Journal of Zhejiang Forestry Science and Technology, 14(6), 44-45.**

Additional key words: detailed record, control method **Computer codes:** ANOLCN, CN

96/157 First report of *Heterodera glycines* in South Dakota

During the 1995 growing season, *Heterodera glycines* (EPPO A1 quarantine pest) has been found for the first time in South Dakota, USA. The nematode was initially found in one field situated in the south-eastern corner of South Dakota (Union County), and then in 10 other fields within 2 to 3 km of the original finding.

Source: Smolik, J.D.; Jones, J.L.; Gallenberg, D.L.; Gille, J.P. (1996) First report of *Heterodera glycines* on soybean in South Dakota. **Plant Disease, 80(2), p 224.**

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

96/158 *Heterodera glycines* is not present in Chile

The EPPO Secretariat has been informed by Plant Protection Service of Chile that *Heterodera glycines* (EPPO A1 quarantine pest) is not present in Chile, and has never been found there.

Source: **Plant Protection Service of Chile.**

Additional key words: denied record **Computer codes:** HETDGL, CL

96/159 EPPO Distribution List for *Heterodera glycines*

The EPPO Secretariat has worked from the literature on the occurrence of *Heterodera glycines* in USA and can now give more details on its distribution. In addition, Chile has denied the presence of *H. glycines* (see EPPO RS 96/158) Therefore, its distribution list can be modified as follows.

EPPO Distribution List: *Heterodera glycines*

The first report of *H. glycines* was from Japan in 1916. Earlier observations date back to 1881. In 1938 the nematode was reported from Manchuria (then an independent state, now in China) and then from several other parts of Asia, including the Amur District in Russia. It was first detected in the USA in 1954 and subsequently found in many states with the extension and intensification of soyabean cultivation. It is still a matter of debate whether *H. glycines* is indigenous to North America.

EPPO region: Egypt (potential EPPO country), Russia (Amur District in the Far East only).

Africa: Egypt.

Asia: China (Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Liaoning), Indonesia (Java only), Japan, Korea Democratic People's Republic, Korea Republic, Taiwan (unconfirmed), Russia (Far East).

North America: Canada (Ontario), USA (Alabama, Arkansas, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, Ohio, South Carolina, South Dakota, Tennessee, Virginia, Wisconsin).

South America: Brazil, Colombia, Ecuador. Unconfirmed reports from Argentina. Denied record for Chile.

This distribution list replaces all previous published EPPO Distribution Lists on *Heterodera glycines*!

Source: EPPO Secretariat, 1996-07.

96/160 List of Contracting Parties to the International Plant Protection Convention

Below is the list of the 102 countries which are now contracting parties to the International Plant Protection Convention (IPPC). Previous lists appeared in the EPPO Reporting Service n° 506/11, 507/13 (1990) and 95/069. Compared to the previous list, only Burkina Faso is a new contracting party. The following EPPO member countries have not yet become contracting parties to the IPPC despite the repeated recommendations of EPPO Council: Croatia, Cyprus, Estonia, Latvia, Poland, Slovak Republic, Slovenia, Switzerland, Ukraine.

Algeria
Argentina
Australia,
Austria
Bahrain
Bangladesh
Barbados
Belgium
Belize
Bhutan
Bolivia
Brazil
Bulgaria
Burkina Faso
Cambodia
Canada
Cape Verde
Chile
Colombia
Costa Rica
Cuba
Czech Republic
Denmark
Dominican Republic
Ecuador
Egypt
El Salvador
Equatorial Guinea
Ethiopia
Finland
France
Germany
Ghana
Greece
Grenada
Guatemala
Guinea
Guyana
Haiti
Hungary
India
Indonesia
Iran
Iraq
Ireland
Israel
Italy
Jamaica
Japan
Jordan
Kenya
Korea, Rep. of
Lao
Lebanon
Liberia
Libyan Arab Jamahiriya
Luxembourg
Malawi
Malaysia
Mali
Malta
Mauritius
Mexico
Morocco
Netherlands
New Zealand
Nicaragua
Niger
Nigeria
Norway
Oman
Pakistan
Panama
Papoua New Guinea
Paraguay
Peru
Philippines
Portugal
Romania
Russia
Senegal
Sierra Leone
Solomon Islands
South Africa
Spain
Sri Lanka
St. Kitts and Nevis
Sudan
Suriname
Sweden
Thailand
Togo
Trinidad and Tobago
Tunisia
Turkey
United Kingdom
United States of America
Uruguay
Venezuela
Yemen
Yugoslavia
Zambia

Source: FAO, Rome (1995-03).

96/161 FAO/IPGRI Technical Guidelines for the safe movement of *Musa* spp. (2nd edition)

FAO and IPGRI (International Plant Genetic Resources Institute, previously IBPGR) have recently issued a revised edition of the technical guidelines for the safe movement of *Musa* spp. Information is provided on diseases of *Musa* species: Abaca mosaic, banana bract mosaic, banana bunchy top, banana mosaic and banana streak. Details on symptoms, geographical distribution, significance, host range, transmission are given in these guidelines, also with relevant data on treatments to be used in order to ensure safe movement of planting material of these crops. So far, FAO/IBPGR have already published guidelines for the following crops: cocoa, Musa (1st and 2nd edition), edible aroids, yam, sweet potato, legumes, citrus, cassava, grapevine, vanilla, coconut, sugarcane and small fruits.

They can be obtained from: Publications Office, IPGRI Headquarters
Via delle Sette Chiese 142
00145 Rome
Italy

Source: FAO/IPGRI, 1996-06.

Additional key words: publication

96/162 Illustrations of Quarantine Pests for Europe

The book 'Illustrations of Quarantine Pests for Europe' is now available. It contains approximately 400 colour pictures of the quarantine pests listed by EPPO and the European Union, with brief legends in French and English. The book is divided into 6 chapters: insects, nematodes, fungi, bacteria, viruses and parasitic plants. Within each chapter, the pest illustrations appear in alphabetical order and at the end of the book and index is given to facilitate picture retrieval.
This new publication prepared by EPPO in association with CABI is a companion book to 'Quarantine Pests for Europe' which is currently being revised (the second edition is expected for the end of 1996).

The Plant Protection Services of EPPO member countries can obtain further copies of the illustrations directly from the EPPO Secretariat, other interested persons should obtain the books from CABI:

CAB INTERNATIONAL
Wallingford
Oxon OX10 8DE
UK

Tel: 44(0) 1491 832111
Fax: 44(0) 1491 833508

Source: **EPPO Secretariat, 1996-07**.

Additional key words: publication