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EPPO *Reporting Service*

94/192

RU...Russian wood-boring insects: key to identification from tunnel patterns

An article by Shamaev (1994) provides a key to identify Russian wood or bark boring insects of quarantine importance for export from the pattern of their tunnels. Species covered include (in brackets, limited distribution in Russia; otherwise in all Russia): *Pissodes pini*, *P. insignitus* (Siberia), *P. nitidus* (Siberia), *P. piniphilus* (Europe, Siberia), *Tetropium castaneum*, *T. gabrieli* (Europe), *T. gracilicorne* (Siberia, Far East), *Monochamus urussovi*, *M. galloprovincialis pistor*, *Scolytus morawitzi* (N.E. Europe, Siberia, Far East), *Chryphalus latus* (Far East), *Orthotomicus laricis* (N. Europe, Caucasus, Siberia, Far East), *Hylurgops spessivtzevi*, *Blastophagus piniperda*, *Dryocoetes baicalicus* (E. Europe, Siberia, Far East), *Ips subelongatus* (N. Europe, Siberia, Far East), *I. amitinus* (EPPO A2 list, East Russia only), *Trypodendron lineatum*, *T. granulatum* (Far East), *T. pubipennum* (Far East), with mention of a number of other minor species. Though those are not (with the single exception) listed explicitly by EPPO, some fall within the broad category of non-European Scolytidae. The EPPO Secretariat has not been able to check whether these species occur elsewhere in Europe than in European Russia. Note that both the *Monochamus* spp. are European.

Source: Shamaev, A.V. (1994) [Identification tables for softwood pests of quarantine significance in timber exports]
Zaschita Rastenii, n°1, 32-35.



EPPO Reporting Service

94/193 NL...News from the Diagnostic Centre of the Dutch Plant Protection Service

The Diagnostic Centre of the Dutch Plant Protection Service has published its Annual Report for 1992, and the following items can be noted:

- 1) Xanthomonas campestris pv. corylina (EPPO A2 quarantine pest) was found on hazelnut (Corylus avellana) in 1991 in the south-western part of the country and its presence was confirmed in 1992. In greenhouse experiments, several cultivars were artificially inoculated with two strains of the bacteria and were all found susceptible.
- 2) Erwinia chrysanthemi (EPPO A2 quarantine pest) biovar 3 was isolated on leek (Allium porrum) grown in the field. This is the first time that E. chrysanthemi is isolated in outdoor crops in the Netherlands.
- 3) In 1992, Bemisia tabaci (EPPO A2 quarantine pest) caused new problems in greenhouses, such as 'uneven ripening' on tomatoes, discoloration of the upper leaves of Bouvardia, and yellow leaf stalks of Gerbera. During a preliminary survey, Dutch populations of B. tabaci were compared with the A strain (cotton strain) and B strain (poinsettia strain causing symptoms of silverleaf) from USA by using electrophoresis. All tested populations belong to the B strain type.
- 4) In 1992, pheromone traps were placed in a garden in the province of Zeeland and attracted Cacoecimorpha pronubana (EPPO A2 quarantine pest) which was not known to be established in the Netherlands. The origin of the carnation tortrix moth remains unknown and the Dutch Plant Protection Service will further investigate the establishment of this species during the next growing seasons.
- 5) Severe Phytophthora root rot was observed in 1992 on raspberry. In the roots, large oospores were visible but the isolation of the pathogen was not possible. However, their morphology suggested that the causal agent was probably P. fragariae var. rubi (EPPO A2 quarantine pest).
- 6) Ditylenchus dipsaci (EPPO A2 quarantine pest) has been observed in the Netherlands for the first time on Helenium and Polemonium.

Source: Annual Report 1992, Diagnostic Centre, Plant Protection Service, Wageningen, Netherlands, 113 p.



EPPO Reporting Service

94/194 **ERWIAM/CH...Situation of *Erwinia amylovora* in Switzerland**

The EPPO Secretariat has recently been informed by the Swiss Plant Protection Service that a new foci of *Erwinia amylovora* (EPPO A2 quarantine pest) has been discovered in an apple nursery, in the north east of Switzerland (15 km from Zürich, in the region of Baden), in August 1994. Other host plants of fireblight situated near this nursery (pear, quince, crataegus and cotoneaster) were also infected. Eradication measures have immediately been implemented. According to the most recent results of the survey being carried out, it seems that this new focus has been eradicated. However, it will be placed under strict control during the next growing season. In addition, the Swiss authorities noted that focus observed during previous years (RS 523/03, 1992) are no longer found and have therefore been successfully eradicated.

Source: Office Fédéral de l'Agriculture, Switzerland, 1994-09.

Additional key words: detailed record.

94/195 **CERAFP/FR...Update on the situation of *Ceratocystis fimbriata* f. sp. *platani* in France**

The EPPO Secretariat has recently been informed by Dr Vigouroux from INRA (Montpellier, FR) of the situation of *Ceratocystis fimbriata* f. sp. *platani* (EPPO A2 quarantine pest) in France, in reaction to a paper published in the EPPO Bulletin (Anselmi *et al.*, 1994). Only the west part of Vaucluse (south of France) is severely affected by stain canker. The incidence of the disease was also high in the region of Marseille, but very strict eradication measures have been implemented. Other scattered foci have been reported in the following départements: Var, Alpes Maritimes, Hérault, Gard, Rhône, Ain and also in Corsica. Concerning modes of transmission, in addition to pruning and root grafts, the pathogen can be transmitted by waterways bordering diseased planes and by earthwork equipment. Dr Vigouroux also stressed that some resistance sources have been found in USA in *Platanus occidentalis*. These lines are now being crossed in France with several lines of *P. orientalis* in order to obtain hybrids tolerant to the disease and adapted to the environmental conditions prevailing in Europe.

Source: EPPO Secretariat, 1994-09.
Anselmi, N.; Cardin, L., Nicolotti, G. (1994) Plane decline in European and Mediterranean countries: associated pests and their interactions.
Bulletin OEPP/EPPO Bulletin 24 (1), 159-171.

Additional key words: detailed record.



EPPO Reporting Service

94/196 **FRANOC/HR...Situation of *Frankliniella occidentalis* in Croatia**

Frankliniella occidentalis (EPPO A2 quarantine pest) was reported for the first time in Croatia in 1989, on chrysanthemum in a greenhouse in Lipik. During the last five years, the western flower thrips spread to all greenhouses of the country. During surveys carried out by the Plant Protection Service, the pest has been recorded on 44 plant species (6 vegetable, 33 ornamentals and 5 weed species). Recently, the following host plants have been reported in Croatia: *Anthurium andreaeanum*, *Anthurium scherzerianum*, *Canna indica*, *Celosia argentea*, *Cordyline purpur compacta*, *Cordyline terminalis*, *Hoya carnosa*, *Philodendron scandens*, *Philodendron selloum*, *Scindapsus aureus*, *Tradescantia fluminensis*, *Yucca elephantipes*, and the weeds: *Amaranthus retroflexus*, *Convolvulus arvensis*, *Ranunculus arvensis*.

During 1992 and 1993 on pepper grown under glasshouse, a naturally occurring predatory bug, *Orius minutus*, was able to control thrips populations. Many trials on chemical control have been carried and showed that on a wide range of ornamental and vegetable crops the following active ingredients gave the best results: dichlorvos, chlorpyrifos-ethyl, thiocyclam hydrogen oxalate and avermectine.

Source: Plant Protection Service of Croatia, 1994-09.

Additional key words: detailed record.

94/197 **PSDMSS...First report of watermelon fruit blotch in Texas**

A new bacterial watermelon fruit blotch was reported in spring 1989 in Florida (US) (RS 519/10, 1992) and then further reported in south-eastern, mid-Atlantic and mid-Western states. In June 1993, this disease was observed for the first time in Frio and Duval Counties in Texas (US) on mature melon fruits, where it caused water-soaked, dark green lesions with irregular margins. In older lesions, the epidermis was brown and cracked. In Frio County, some necrotic leaf lesions were also observed. The area known to be affected by the disease in Texas is only about 100 acres. In the Frio County the disease incidence was approximately 50 % in the affected fields. The causal agent was isolated and identified as *Acidovorax avenae* subsp. *citrulli* (syn. *Pseudomonas pseudoalcaligenes* subsp. *citrulli*).

Source: Black, M.C.; Isakeit, T.; Barnes, L.W.; Kucharek, T.A.; Hoover, R.J.; Hodge, N.C. (1994) First Report of Bacterial Fruit Blotch of Watermelon in Texas.
Plant Disease, 78 (8), p 831.

Additional key words: new record.



EPPO *Reporting Service*

94/198

PRDXXX...PCR detection of pear decline in Italy

In summer 1992, quick decline of pear trees was observed in Emilia-Romagna and Veneto regions. Pear trees, apparently healthy, suddenly wilted and withered within a few days, with leaves and fruits still attached, and finally die. This form of pear decline was observed in 5-year old cv. Williams grafted onto seedling pear rootstocks (*Pyrus communis*) of unknown origin and on 8-year old cvs Kaiser and Max Red Bartlett grafted onto Kirchensaller seedlings. In the same orchards, the slow form of the syndrome commonly known as pear decline was also observed (pear decline MLO is an EPPO A2 quarantine pest). PCR (polymerase chain reaction), followed by RFLP was used to detect MLOs associated with pear decline. MLOs were consistently found in pear trees affected by quick and slow decline, and in both cases the same RFLP pattern was obtained, which indicates that the same pathogen is involved in these two forms. However, the authors pointed out that the possibility of the presence of more than one MLO involved in the two syndromes would need further investigation. The occurrence of different forms of pear decline in the same orchards could be due to a certain variability of rootstock susceptibility and it was noted that all orchards affected by quick decline showed high populations of pear psyllid (*Cacopsylla pyri*). The authors concluded that PCR was a suitable method for detecting pear decline MLOs, in wilting plants and in infected tissues of dead trees.

Source: Giunchedi, L.; Poggi Pollini, C.; Biondi, S.; Babini, A.R. (1994) PCR detection of MLOs in quick decline-affected pear trees in Italy. *Annals of Applied Biology*, 124 (2), 399-403.



EPPO *Reporting Service*

94/199 **TMYLCX...First record of a tomato yellow leaf curl-like geminivirus in the Dominican Republic**

A new disease of tomato causing symptoms similar to tomato yellow leaf curl geminivirus (EPPO A2 quarantine pest) was observed in the northwestern Dominican Republic in autumn 1992. In 1993, very serious losses (up to 90 %) on tomatoes occurred in the northwestern and southern regions and numerous populations of *Bemisia tabaci* were associated with the diseased plants. Spot hybridization assays were carried out with tomato mottle virus A component and tomato yellow leaf curl DNA probes. A strong hybridization was only observed with the tomato yellow leaf curl DNA probe. However, during amplification assays of nucleic acid extracts with specific primers, amplified DNA fragments (ca. 1400 bp and 400 bp) were slightly different from those obtained with tomato yellow leaf curl (1400 bp and no visible fragment). In addition, restriction pattern of the ca. 1400 bp fragment had a different sequence from the published sequences for tomato yellow leaf curl. The authors concluded that these results indicate that the disease observed in the Dominican Republic is caused by a tomato yellow leaf curl-like geminivirus, and that this is the first report of this type of geminivirus in the Western Hemisphere.

Source: Polston, J.E.; Bois, D.; Serra, C.A.; Concepción, S. (1994) First Report of a Tomato Yellow Leaf Curl-Like Geminivirus in the Western Hemisphere.
Plant Disease, 78 (8), p 831.

Additional key words: new record.



EPPO *Reporting Service*

94/200 **TR...Report of the 9th Congress of the Mediterranean
Phytopathological Union**

The 9th Congress of the Mediterranean Phytopathological Union took place in Kusadasi, in Turkey, on 1994-09-18/24. During this Congress a large number of papers and posters were presented on the following topics: detection of plant diseases and pathogens, soil and seed borne diseases and pathogens, biological control of plant diseases, plant selection for resistance to pathogens, management of plant diseases and selected diseases of Mediterranean crops.

The following Reporting service articles will especially focus on papers presented during this Congress, concerning EPPO quarantine pests and new information or records.

Source: **EPPO Secretariat, 1994-09.**

**Proceedings of the 9th Congress of the Mediterranean
Phytopathological Union, September 18-24, 1994, Kusadasi, Aydin,
Turkey.**

94/201 **POSTXX/TR...Potato spindle tuber viroid is not present in
the Aegean region of Turkey**

Approximately 10 % of the total potato production in Turkey (estimated as 200.000 ha) is located in the Aegean Region. The presence of potato spindle tuber viroid (EPPO A2 quarantine pest) has previously been reported by EPPO in Turkey (based on answers given to questionnaires sent in 1986 and 1988 on the geographical distribution of quarantine pests), but it is now stressed that no scientific report of its presence in commercial potato crops in Turkey has been published. A survey was carried out in seed potato fields in the Aegean region. 150 samples of seed tubers (with 2/3 tubers per sample) were collected at random from the following provinces: Balıkesir, İzmir, Kütahya, Manisa, Muğla, Uşak. Detection was performed by using a biotinylated DNA probe specific to PSTVd, developed by CIP in Peru, which is much more sensitive than electrophoresis. All tested samples were found free from PSTVd. EPPO is currently trying to obtain more information on the status of this disease in Turkey.

Source: Çiçek, Y.; Querci, M. (1994) Studies on the incidence of the potato
spindle tuber viroid (PSTVd) in the seed potato production areas in
Aegean region of Türkiye.
**Paper presented at the 9th Congress of the Mediterranean
Phytopathological Union.**

Additional key words: denied record.



EPPO *Reporting Service*

94/202 **VIRUSES/TR...Viruses of strawberry in the Aegean region of Turkey**

A survey has been carried out in the Aegean region of Turkey on strawberry viruses. This crop covers 5380 ha in Turkey (and 478 ha in the Aegean region). In total, 600 samples of infected and healthy looking leaves were collected from 11 different locations in the Aegean region and tested by indexing on herbaceous indicators (sap inoculation and leaf grafting) and by serology (DAS-ELISA). The following viruses have been detected: raspberry ringspot nepovirus (EPPO A2 quarantine pest), strawberry latent ringspot nepovirus (EU Annex II/A2), tomato black ring nepovirus (EU Annex II/A2) and tomato ringspot nepovirus (EPPO A2 quarantine pest). These viruses were often found in combination. The records of strawberry latent ringspot nepovirus, tomato ringspot nepovirus and tomato black ring nepovirus in Turkey are new to the EPPO Secretariat.

Source: Çiçek, Y. (1994) Investigations on the incidence of strawberry viruses in west part of Türkiye.
Poster presented at the 9th Congress of the Mediterranean Phytopathological Union.

Additional key words: new records.

94/203 **TYMLCX/LB...Situation of tomato yellow leaf curl geminivirus in Lebanon**

Tomato yellow leaf curl geminivirus (EPPO A2 quarantine pest) is a serious pest in Lebanon. A recent survey has shown that field production of tomatoes during summer and autumn has been abandoned along the Lebanese coastal plains because of this disease which also severely affects greenhouse production. Screening studies for resistant tomato genotypes to tomato yellow leaf curl geminivirus are being conducted, and four cultivars have been found highly tolerant to the disease. For the detection of the virus, the authors have found that the tissue blot technique gave good results.

Source: Abou Jawdah, Y.; Shebaro, W. (1994) Screening tomato genotypes for resistance to tomato yellow leaf curl geminivirus and its detection by a digoxigenin labelled DNA probe.
Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.

Additional key words: detailed record.



EPPO Reporting Service

94/204 **TMSWXX...Studies on the seed transmission of tomato spotted wilt tospovirus in Italy**

The transmission of tomato spotted wilt tospovirus (EPPO A2 quarantine pest) through seeds has been studied in Italy (near Ragusa, south of Sicily) on seeds and plantlets of tomato (*Lycopersicon esculentum*), aubergine (*Solanum melongena*), capsicum (*Capsicum annuum*) and periwinkle (*Catharanthus roseus*) by serological methods (double diffusion and ELISA). In nurseries, using nets preventing thrips infestation, TSWV was found in plantlets suggesting that the virus could be seed transmitted. Seeds of capsicum and tomato were found infected by TSWV but no positive result was obtained for aubergine and periwinkle seeds. Infected plants of capsicum and tomato obtained both from commercial seeds and from seeds collected from symptomatic fruits were detected. The authors concluded that TSWV can be transmitted through seeds, though probably at a low percentage.

Source: Davino, M.; D'Urso, F.; Carbone, M. (1994) Investigations to ascertain transmission of tomato spotted wilt virus through seeds of different herbaceous hosts.

Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.

94/205 **TMSWXX...Sources of resistance to tomato spotted wilt tospovirus in *Capsicum***

Different *Capsicum* genotypes have been studied for their resistance to tomato spotted wilt tospovirus (EPPO A2 quarantine pest) in France. Sources of resistance have been confirmed in the species *Capsicum chacoense* and found in *C. frutescens* against several strains of TSWV. Breeding programmes are now being carried out in order to use these sources of resistance for cultivated varieties.

Source: Womdim, R.N.; Palloix, A.; Selassie, K.G.; Phally, T.; Gognalons, P.; Marchoux, G. (1994) Sources of resistance to tomato spotted wilt virus in *Capsicum* species.

Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.



EPPO Reporting Service

94/206

FRANOC/TMSWXX...Situation of thrips and tomato spotted wilt tospovirus in the northwest of Portugal

In the northwest of Portugal, surveys have been carried out from April 1992 to October 1993 in glasshouses of tomato, melon, green beans, carnation, gerbera and rose to study the incidence of thrips (including *Frankliniella occidentalis*) and tomato spotted wilt tospovirus (both EPPO A2 quarantine pests). Thrips populations have been monitored by using sticky traps and their infectivity has been tested. The occurrence of TSWV has been studied by using ELISA. The results have shown that ten species of thrips are present, with a predominance of *Thrips tabaci* (also a vector of TSWV). *Frankliniella occidentalis* was only observed in rose glasshouses. Transmission experiments demonstrated that many thrips captured alive on flowers of ornamentals and weeds were infected and able to transmit TSWV. Finally, TSWV was detected on several plant species: lettuce, tomato, watermelon, melon and 15 ornamental crops (especially on *Gerbera*, *Gladiolus* and *Chrysanthemum* but also on *Dahlia*, *Limonium latifolium*, *L. sinuatum*, *Liatris spicata*, *Lavandula spicata*, *Camellia japonica*, *Callistephus sinensis*, *Cyclamen*, *Impatiens*, *Sinningia vulgaris*, *S. speciosa* and *Xeranthemum annuum*). The authors concluded that the thrips/TSWV complex is established in the northwest of Portugal, but noted that further surveys would be needed, in particular to study the incidence of impatiens necrotic spot tospovirus.

Source: Pereira, A.M.N.; Cortes, M.I. (1994) The complex thrips/tomato spotted wilt virus in the northwest of Portugal.

Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.

Additional key words: detailed record.



EPPO *Reporting Service*

94/207 **TMSWXX/ES...Situation of tomato spotted wilt tospovirus in the northeast of Spain**

The incidence and distribution of tomato spotted wilt tospovirus has been studied in the northeast of Spain. Samples have been collected at random from tomato crops grown in the field and from weeds, at the beginning of summer and at the beginning of autumn (1992 and 1993). The virus was detected by using DAS-ELISA. A total of 4057 samples has been analyzed. The authors found that the most affected areas were those near the Mediterranean Sea. In the continental regions with a less intensive cultivation, TSWV was not considered important. In addition, TSWV has only a low incidence on spontaneous weeds.

Source: Lavina, A.; Garcia, I.; Moriones, E. (1994) Incidence and distribution of TSWV and CMV in open field tomato crops and weeds in the northeastern Spain.
Poster presented at the 9th Congress of the Mediterranean Phytopathological Union.

Additional key words: detailed record.

94/208 **NEWPEST/TR...New soil-borne virus on wheat in Turkey**

A new soil-borne virus has been observed on wheat in Turkey, but only in a very limited area in Alpu, near Eskisehir. The symptoms are characterized by severe stunting, rosetting and poor heading and appear in patches in the same fields over the years, suggesting the occurrence of a soil-borne causal agent. The pathogen has not yet been characterized but so far potyvirus-like particles have been observed. Further studies are being carried out on the identity of the causal agent and on possible sources of resistance against this disease.

Source: Makkouk, K.M.; Lesemann, D.E.; Saari, E.E., Altay, F.; Süzen, B.; Bolat, N.; Braun, H.J.; Payne, T.S.; Beniwal, S.P.S (1994) Identity of and screening for resistance to a new soil-borne virus affecting wheat in Türkiye.
Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.

Additional key words: new pest.



EPPO Reporting Service

94/209

NEWPEST/TR...New citrus disease in Turkey

A new disorder of citrus has been observed recently in Turkey and reached epidemic levels at the end of the 80s. According to the symptoms observed on citrus indicator plants, the absence of serological relationship with citrus crinkly leaf virus and citrus infectious variegation virus and its suspected transmission by *Parabemisia myricae*, it seems that the causal agent is not related to citrus crinkly leaf virus or citrus infectious variegation virus. A survey has been conducted in three provinces of Turkey (Içel, Adana, Hatay) and in 55 citrus orchards. In total, 4407 randomly selected trees have been visually observed for symptoms from September 1993 to March 1994. On average, 20.3 % citrus trees showed symptoms. However, nearly all infected trees were found in Içel with high infection levels and in two small locations in Adana but with a low incidence. The disease was not observed in the province of Hatay. In addition, in order to study the natural transmission of the disease, virus-free rough lemon seedlings (*Citrus jambhiri*) grown in pots have been placed in heavily infected orchards from May to October 1993 and then moved into a greenhouse for symptom observation. Natural transmission of the disease occurred but only few whitefly vectors, *P. myricae*, were found in the orchards. The authors are very concerned about the possible further spread of this disease, especially in the Province of Adana.

Source: Korkmaz, S.; Çinar, A.; Bozan, O.; Kersting, U. (1994) Distribution and natural transmission of a new whitefly-borne virus disease of citrus in the eastern Mediterranean region of Türkiye.

Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.

Additional key words: new pest.



EPPO *Reporting Service*

94/210 **NEWPEST...New yellowing disease of melon caused by cucurbit aphid-borne yellows luteovirus**

A new yellowing disease of melon, cucumber and courgette has been observed since 1988 in France and can cause significant yield losses. Symptoms are characterized by yellowing and thickening of the older leaves. The causal agent is a luteovirus, called cucurbit aphid-borne yellows virus (CABYV), transmitted (persistent manner) by *Myzus persicae* and *Aphis gossypii*. By using DAS-ELISA, the virus was frequently detected in samples of melon, courgette or cucumber from different regions of France, suggesting a widespread distribution of the virus. In addition, this virus was also frequently found in naturally infected cucurbits originating from Mediterranean countries: Algeria, Italy, Greece, Morocco, Spain and Turkey. Breeding programmes are being implemented to obtain resistant plants in most species affected by the disease.

Source: Lecoq, H.; Gilbert-Albertini, F.; Wipf-Scheibel, C.; Pitrat, M.; Bourdin, D. Belkhala, H.; Katis, N.; Yilmaz, M. (1994) Occurrence of a new yellowing disease of cucurbits in the Mediterranean basin caused by a luteovirus, cucurbit aphid-borne yellows virus and prospects for control.
Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.

Additional key words: new pest.

94/211 **ERWIAM...Transgenic plants resistant to *Erwinia amylovora***

In United States, research is done on transgenic apple plants resistant to fireblight (*Erwinia amylovora* - EPPO A2 quarantine pest). Although, no fireblight resistance genes have been cloned from apple, the authors were able to use genes coding for small lytic proteins (in this case Attacin E) which inhibit pathogenic bacteria. By using *Agrobacterium tumefaciens*, the Attacin E gene has been successfully transferred into the M. 26 rootstock. Laboratory trials have shown that transgenic plants were more resistant to fireblight than the normal M. 26. In May 1993, a field trial has been authorized for testing resistance and pomological characteristics, and the author felt that the preliminary results are very encouraging. Studies are also carried out on the transformation of apple fruit varieties (e.g. Gala) for their resistance to fireblight, and also for important fungi.

Source: Aldwinckle, H. (1994) Genetic engineering for disease resistance in apple.
Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.



EPPO *Reporting Service*

94/212 **FUMIGATION...Improved technologies to reduce methyl bromide emission**

Improved technologies have been used in Israel in order to reduce methyl bromide emission. Trials have been carried out in potato fields infected with *Verticillium dahliae*. The use of virtually impermeable films (two outer layers of low density polyethylene with a nylon or an ethylene vinylalcohol layer in the middle) during the exposure period can allow a 50 % reduction of dosage (25 g/m² instead of 50g/m²) and a reduction of methyl bromide emission with the same efficacy.

Source: Gamliel, A.; Grinstein, A.; Klein, L.; Peretz, I.; Nachmias, A.; Katan, J. (1994) Improved technologies for reducing methyl-bromide emission. **Paper presented at the 9th Congress of the Mediterranean Phytopathological Union.**

94/213 **PUBLICATION...FAO/IPGRI Technical Guidelines for the safe movement of small fruit germplasm**

FAO and IPGRI (International Plant Genetic Resources Institute, previously IBPGR) in collaboration with ISHS have recently issued technical guidelines for the safe movement of small fruit germplasm. These guidelines give information on diseases and pests of strawberry, Ribes, Rubus and Vaccinum (symptoms, host range, geographical distribution, transmission) and provide relevant data on indexing methods and other procedures (e.g. thermotherapy) to be used in order to ensure safe movement of germplasm.

So far, FAO/IBPGR have already published guidelines for the following crops: cocoa, edible aroids, musa, sweet potato, yam, legumes, cassava, citrus, grapevine, vanilla, coconut and sugarcane.

They can be obtained from:

Publications Office, IPGRI Headquarters
Via delle Sette Chiese 142
00145 Rome
Italy
Tel: (39-6) 518921
Fax: (39-6) 5750309

Source: FAO/IPGRI, 1994-09.