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EPPO *Reporting Service*

93/001

EPPO...New Reporting Service numbering

The staff of the EPPO Secretariat takes the opportunity to send all readers of the Reporting Service best wishes for the year 1993!

With the beginning of the year 1993 and the January issue of the Reporting Service the EPPO Secretariat will change the number codes of the Reporting Service and the single articles of this publication. Since the Reporting Service has increasingly served as an international source for distribution records of quarantine pests and other official information it was felt that the year of appearance of a certain Reporting Service item should be indicated in the number code. Therefore, the first article in the January issue of the Reporting Service 1993 will receive the number - **93/001** - by which the first two numbers indicate the year of appearance and the following three the running number of the article within the year 1993. We believe that this system will make it easier to handle Reporting Service articles when they are indicated as a reference.



EPPO *Reporting Service*

93/002 TRIZER/CSGXXX...Efficacy of *Trioza erytreae* to vector citrus greening bacterium

Experiments in South Africa showed that *Trioza erytreae* (EPPO A1 pest) is a very efficient vector of citrus greening bacterium (EPPO A1 organism). Healthy citrus psyllas were allowed different acquisition feeding times on citrus greening infected citrus seedlings and then transferred at daily intervals to healthy citrus plants. This was carried out to measure the time period from the acquisition of the bacterium to its transmission.

It was found that after only 1 h of feeding on diseased material the citrus psylla could vector the citrus greening bacterium, but only after a latent period of 3-4 days. If the citrus psylla fed longer than 8 h on diseased citrus material there was no latent period.

Source: Van Vuuren, S.P.; Van Der Merwe, M.J. (1992) Efficacy of citrus psylla, *Trioza erytreae*, as a vector of citrus greening disease. *Phytophylactica* 24, 285-288.



EPPO *Reporting Service*

93/003

POSTXX...Interactions between potato virus Y and potato spindle tuber viroid

In Helsinki, Finland, studies were carried out to investigate the effects on the accumulation of potato virus Y (PVY) through co-infections of *Solanum brevidens* by other viruses and viroids. It was found that a co-infection with potato spindle tuber viroid (EPPO A2 organism) enhanced the accumulation of PVY 1000-fold.

Source:

Valkonen, J.P.T. (1992) Accumulation of potato virus Y is enhanced in *Solanum brevidens* also infected with tobacco mosaic virus or potato spindle tuber viroid.

Annals of Applied Biology 121, 321-327.



EPPO *Reporting Service*

93/004 **DIPDMA...Mode of infection of maize by *Stenocarpella maydis***

In South Africa studies were carried out to investigate the mode of penetration and colonization of maize by *Stenocarpella maydis* (EPPO A2 organism) as well as the time and site of inoculation of maize for an optimum infection of ears to cause ear rot.

Scanning electron microscope studies revealed that *S. maydis* conidia germinated on all plant material types after 5 h of incubation at a temperature of 30° C. After 72 h of incubation appressoria had formed on the hyphal tips. The penetration was achieved by a penetration hypha which resulted in the intercellular and intracellular colonization of the plant tissues. The authors suggested that the host colonization is facilitated by enzyme activities of the fungus, since the colonization was accompanied by a degradation of the cell walls. (a)

The highest incidence of *S. maydis* ear rot occurred when a conidial suspension was placed on the shank at silking. (b)

- Source:**
- a) Bensch, M.J.; Van Staden, J. (1992) Ultrastructural histopathology of infection and colonization of maize by *Stenocarpella maydis* (= *Diplodia maydis*).
Journal of Phytopathology 136, 312-318.
 - b) Bensch, M.J.; Van Staden, J.; Rijkenberg, F.H.J. (1992) Time and site of inoculation of maize for optimum infection of ears by *Stenocarpella maydis*.
Journal of Phytopathology 136, 265-269.



EPPO *Reporting Service*

93/005 ANSTOB...Quarantine treatment of mangoes against
Anastrepha obliqua

The efficiency of a hot-air quarantine treatment for mangoes against *Anastrepha obliqua* (EPPO A1 pest) was investigated in Texas, US. Mangoes infested by larvae of the pest were subjected to a forced hot air treatment with a running air temperature of 50° C at a speed of 0,4 m³s⁻¹. The mangoes were heated until the seed surface temperature reached 48° C. No surviving larvae of the pest were found after this treatment and probit 9 (99,9968% mortality) was achieved. The hot air treatment did not affect quality and appearance of the treated mangoes.

Source: Mangan, R.L.; Ingle, S.J. (1992) Forced hot-air quarantine treatment for mangoes infested with West Indian fruit fly (Diptera: Tephritidae). *Journal of Economic Entomology* **85**, 1859-1864.



EPPO *Reporting Service*

93/006 ANSTLU...Mating competitiveness of irradiated *Anastrepha*
ludens

In Texas, US, laboratory and field cage experiments were carried out to compare the mating competitiveness of irradiated and unirradiated *Anastrepha ludens* (EPPO A1 quarantine pest). Two laboratory colonies of the pest were divided into irradiated and unirradiated groups and then tested in competition against feral *A. ludens*. It was found that the unirradiated flies were very competitive with the feral flies. Irradiated males were only one fifth to one third as successful in mating as the feral flies and produced only 65% as much pheromone as unirradiated flies.

Source: Moreno, D.S.; Sanchez, M.; Robacker, D.C.; Worley, J. (1991) Mating competitiveness of irradiated Mexican fruit fly (Diptera: Tephritidae). *Journal of Economic Entomology* 84, 1227-1234.



EPPO *Reporting Service*

92/007

CERTCA...Suppression of *Ceratitis capitata* populations

The concurrent release of sterile Mediterranean fruit flies and the braconid larval parasitoid *Diachasmimorpha tryoni* was investigated on Maui, Hawaii (US) as a means to suppress a wild *Ceratitis capitata* (EPPO A2 pest) population in a certain area of the island.

Three million irradiated Medflies were released per week on a 13 km² area at a ratio of 76 sterile to one wild fly. Additionally, 388.000 parasitoids were released every week. The statistical comparison with a control area showed that the concurrent release of sterile flies and parasitoids caused a significantly lower egg hatching of the fruit flies, a significantly higher parasitism of the fruit flies in fruit samples and a significantly lower mean recovery rate of *C. capitata* per kilogram fruit.

The authors suggest that the concurrent release of sterile Mediterranean fruit flies and the parasitoid *D. tryoni* could represent a valuable approach for the eradication of established *C. capitata* populations.

Source:

Wong, T.T.Y.; Ramadan, M.M.; Herr, J.C.; McInnis, D.O. (1992)
Suppression of a Mediterranean fruit fly (Diptera: Tephritidae) population
with concurrent parasitoid and sterile fly releases in Kula, Maui, Hawaii.
Journal of Economic Entomology 85, 1671-1681.



EPPO *Reporting Service*

93/008

DACUDO...Cold tolerance of *Bactrocera dorsalis*

Experiments were carried out in Japan to determine if immature stages of *Bactrocera dorsalis* (EPPO A1 pest) can acquire a cold tolerance. Immature stages of the oriental fruit fly infesting an artificial diet and orange fruits were subjected to a cold treatment of $1^{\circ} \pm 0.5^{\circ}$ C. It was found that larvae and eggs showed different responses to low temperature and, depending on the length of the transition period until the temperature reached its minimum, can acquire a cold tolerance.

Source:

Iwata, M.; Makiguchi, S.; Ishikawa, A.; Shimabukuro, S.; Tanabe, K. (1992) Acquisition of cold tolerance in immature stages of oriental fruit fly, *Dacus dorsalis* (Diptera: Tephritidae) in artificial diet and orange fruits.

Research Bulletin of the Plant Protection Service of Japan 28, 55-60.



EPPO *Reporting Service*

93/009

FRANOC...Chemical control of *Frankliniella occidentalis*

Since the arrival of *Frankliniella occidentalis* (EPPO A2 pest) in the UK in 1986, the pest has spread rapidly throughout the glasshouse industry of the country. The lack of entirely reliable control methods, either biological or chemical, has led to studies in laboratory and greenhouse experiments of the efficiency of 51 UK registered pesticides against the thrips.

It was found that malathion proved to be the most potent chemical for the control of *F. occidentalis* on a wide range of horticultural crops. In the laboratory experiments it caused a mean kill of 99.6%, 99.5% and 99.9% 72 h after the application of the compound to larvae, pupae and adults, respectively. In the greenhouse experiments malathion gave a significantly better control of Western flower thrips than other tested products.

Source: Helyer, N.L.; Brobyn, P.J. (1992) Chemical control of Western flower thrips (*Frankliniella occidentalis* Pergrande).
Annals of Applied Biology 121, 219-231.

93/010

FRANOC/TMSWXX...Acquisition of tomato spotted wilt tospovirus by *Frankliniella occidentalis*

Studies in Hawaii, US, revealed that adults of *Frankliniella occidentalis* (EPPO A2 pest) are unable to acquire tomato spotted wilt tospovirus (potential EPPO A2 organism) and to vector it to host plants. Ultrastructural and serological analyses showed that a midgut barrier to TSWV is responsible for this inability. Ingested TSWV particles are apparently degraded or altered in the midgut lumen and/or epithelial cells. TSWV can only be acquired by larvae which feed on infected plant material, and then persists through adulthood.

Source: Ullman, D.E.; Cho, J.J.; Mau, R.F.L.; Westcot, D.M.; Custer, D.M. (1992) A midgut barrier to tomato spotted wilt virus acquisition by adult Western flower thrips.
Phytopathology 82, 1333-1342.



EPPO *Reporting Service*

93/011 HELIAM...Spraying techniques against *Helicoverpa armigera*

In India, experiments were carried out to develop spray-techniques against *Helicoverpa armigera* (EPPO A2 pest) which also take into the consideration the survival of natural enemy populations. A strip application of 0,07% endosulfan with equally wide untreated strips between them reduced the damage caused by the pest and increased the yield of pigeon pea significantly.

Source: Sanap, M.M.; Deshmukh, R.B.; Bhor, S.B. (1990) Effect of strip application of endosulfan on pod borer damage and grain yield in pigeon pea.
Indian Journal of Pulses Research 3, 48-51.



EPPO *Reporting Service*

93/012 **LEPTDE...Insecticidal compound against *Leptinotarsa decemlineata***

The insecticidal properties and their mode of action of efrapeptins, metabolic peptides isolated from the fungus *Tolypocladium niveum*, were studied in the USA.

Five crude mixtures of efrapeptins showed toxic activity against *Heliothis virescens*, *Leptinotarsa decemlineata* (EPPO A2 pest), *Spodoptera eridania* and *Tetranychus urticae*. The insecticidal activity of the efrapetins was demonstrated in a usage of the compound as a foliar spray against the Colorado potato beetle. The toxic effect of efrapeptins to certain insects is due to an ATPase inhibition.

Source: Krasnoff, SB.; Gupta, S.; St. Leger, R.J.; Renwick, J.A.A.; Roberts, D.W. (1991) Antifungal and insecticidal properties of the efrapeptins: metabolites of the fungus *Tolypocladium niveum*.
Journal of Invertebrate Pathology 58, 180-188.

93/013 **LEPTDE...Influence of subzero thermal shocks on survival of *Leptinotarsa decemlineata***

In Wisconsin, US, experiments were carried out to investigate the survival of *Leptinotarsa decemlineata* (EPPO A2 pest) after exposure to subzero shocks during diapause. Adult beetles were collected from fields and then subjected to controlled environmental conditions which simulated a diapause period. Groups of the Colorado beetles were then subjected to cold shocks of -4°, -6°, -8°, -10° and -12° C lasting 4, 6, 8, 10 and 12 h, respectively. It was found that the survival of Colorado beetles decreased dramatically following cold shocks < -4° C. (a)



EPPO *Reporting Service*

93/014 LIRIHU...*Liriomyza huidobrensis* found in Finland

During a general country-wide survey of glasshouses in Finland in 1992-10 to detect possible infestations of *Frankliniella occidentalis* (EPPO A2 pest) the Finnish Plant Quarantine Service has detected infestations of glasshouses by *Liriomyza huidobrensis* (EPPO A2 pest) at two locations within the country. Immediate action was taken by the Finnish authorities and the crops concerned were destroyed and the infested glasshouses disinfected. The Finnish authorities believe that the eradication programme has been successful since no further infestations have been observed. Also surveys of the immediate vicinity of the glasshouses concerned showed no occurrence of *L. huidobrensis*.

Source: Plant Quarantine Service of Finland, (1992-12)



EPPO *Reporting Service*

93/015 **LIRISA...*Liriomyza sativae* on green onion**

Liriomyza sativae (EPPO A1 pest) has been found infesting green onion (*Allium cepa* var. *aggregatum*) in the main production area of this crop in Hawaii, US. Laboratory studies on the host-plant preference in comparison with *L. sativae* collected from conventional hosts from another region showed the leafminers from onion had broadened their host range to include green onion.

The authors assume that the expansion of the *L. sativae* host range to green onion is a significant sign since it would support the hypothesis that the leafminer may infest new and atypical host plants in areas where it has been or may be introduced.

Source: Carolina, J.; Herr, C.; Johnson, M.W. (1992) Host plant preference of *Liriomyza sativae* (Diptera: Agromyzidae) populations infesting green onion in Hawaii.
Environmental Entomology 21, 1097-1102.



EPPO *Reporting Service*

93/016 **PHOASE....Ecology of *Phoracantha semipunctata***

Observations in the province of Huelva, Spain, on the ecology of *Phoracantha semipunctata* (EPPO A2 pest) showed that the mean temperature should not be lower than 15° C for the oviposition of the eucalyptus borer. The earliest emergences were observed 62 days after oviposition, but emergences after 15 and 16 months were also observed. Small parts of the populations were able to give rise to two generations per year, but most had only one. The observations on the ecology of the pest were included in a model for prediction of emergence in *P. semipunctata*.

Source: Gonzales Tirado, L. (1992) Estudio sobre integrales térmicas de *Phoracantha semipunctata* Fab., insecto perforador del género *Eucalyptus*, en Huelva, (España).
Boletín De Sanidad Vegetal Plagas 18, 529-545.



EPPO *Reporting Service*

93/017 **THRIPL...*Thrips palmi* discovered in the EC (NL)**

Thrips palmi (EPPO A1 pest) has been discovered in the EC (Netherlands) at three nurseries. The pest was introduced by one nursery which obviously imported infested *Ficus benjamina* from Guatemala. Two other nurseries received plant material plus pest from the importing company.

All three infestations have been placed under official control by the Plantenziektenkundige Dienst of the Netherlands and the infestations will be eradicated by combining crop destruction, soil disinfection, cleansing and disinfection of greenhouses and destruction of aids and appliances. No material is allowed to depart from these companies. A wide survey of companies importing material from Guatemala and other high-risk areas has led to the result that no other nurseries were infected by *T. palmi*. The Plant Protection Service of the Netherlands is convinced that the given approach will lead to the eradication of the pest in The Netherlands.

Source: Plant Protection Service of The Netherlands (1993-01)



EPPO *Reporting Service*

93/018 **BURSXY...*Bursaphelenchus xylophilus* reported from Nigeria**

Nematode-induced pine wilt disease and the causal pest *Bursaphelenchus xylophilus* (EPPO A1 pest) have been reported for the first time in Africa (Nigeria). The infected Pinus species are *P. caribaea*, *P. oocarpa*, *P. khasya* and *P. merkusii*.

Since no previous suspicion of the occurrence of the pest in Africa has been raised, the EPPO Secretariat suggests that the report should be considered dubious. The EPPO Secretariat is currently trying to obtain more information on this matter from the Nigerian authorities and from research sources.

Source: Nematological Abstracts 61 (1992), Nr. 674
Khan, F.A.; Gbadegesin, R.A. (1991) On the occurrence of nematode induced pine wilt disease in Nigeria.
Pakistan Journal of Nematology 9, 57-58.

EPPO Secretariat, Paris (1993-01)



EPPO *Reporting Service*

93/019 MELGCH...Control of *Meloidogyne chitwoodi*

At the Annual Meeting of the American Phytopathological Society (APS) and Mycological Society of America (MSA) in Portland 1992 it was reported that *Meloidogyne chitwoodi* (potential EPPO A2 pest) on potato can be managed by rapeseed and sudangrass as green manure. Scientists of the Washington State University and the Oregon State University found in greenhouse experiments that shoots and roots of rapeseed as well as shoots, but not roots from sudangrass reduced *M. chitwoodi* populations. The zone of incorporation was protected from a recolonization of the root knot nematode for a time period of 6 weeks. In field experiments the incorporation of rapeseed and sudangrass into soil as green manure resulted in the reduction of *M. chitwoodi* damage on potatoes for two consecutive years.

Source: Mojtahedi, H.; Santo, G.S.; Ingham, R.E.; Hang, A.N.; Wilson, J.H.
 (1992) Managing *Meloidogyne chitwoodi* on potato with rapeseed and
 sudangrass as green manure.
 Phytopathology 82, 1075.



EPPO *Reporting Service*

93/020

CABI...The CABI CABPESTCD

A plant protection information system on CD-ROM

For several years, the CD-ROM medium has been available as a means of delivering scientific and bibliographic information. However, it has not immediately been widely used, firstly because the equipment (CD-ROM disk drive to be attached to a microcomputer) has been rather expensive and secondly because only very limited numbers of publications were available on CD-ROM, at rather high prices. This situation has now changed considerably: CD-ROM disk drives are purchasable for less than 2000 FRF and the variety of publications on the market is much greater.

CD-ROM is a remarkable data storage medium: CD-ROMs are storage platforms for all kinds of information whether in audio (music CD), video (laser disk), text or combinations of all (multi-medium). The disks have an average storage capacity of 500 Mbytes (over 500 million characters or approximately 250.000 typewritten pages).

CABI was one of the first agricultural information services to discover CD-ROM, and published CABCD in 1989, a set of CD-ROM disks containing the entire CAB Abstracts data base since 1984 on CD-ROM, with annual updates thereafter. Now, in 1992, a subset of these CAB Abstracts is available on a CD called CABPESTCD, dealing only with plant protection (entomology, plant pathology, nematology, pesticides, weed science, vertebrate pests and biological control). It contains over 430.000 abstracts, and additionally goes back to 1973, providing 11 extra years of coverage for the plant protection field. All the CABI CD-ROMs are retrieved with the SilverPlatter Information Retrieval System, a well known software product which is also used in other CD-ROM products such as the AGRIS data base of FAO.

Content of the data base

CABPESTCD is based on exactly the same data base as CABCD, for the years when the disks overlap. Its information is also identical with that used to publish the CABI abstract journals (especially, for plant protection, *Review of Applied Entomology*, *Review of Plant Pathology*, *Nematological Abstracts*, *Weed Abstracts* and *Biocontrol News and Information*). This information has been highly regarded by plant protection experts for many decades. The advantage of the CD-ROM presentation is that it covers 18 years of abstracts on one disk, which can be searched in a single operation.



EPPO *Reporting Service*

Coverage

As already pointed out, CABPESTCD has the same content as the CABI journals and CABCD. This is certainly one of the world's most extensive and best collection of abstracts on plant protection. However, it does only constitute a selection from the plant protection literature, and one cannot assume that every plant protection article from the journals declared to be covered will be included. The EPPO Secretariat has examined the coverage of several journals from continental Europe, including Bulletin OEPP/EPPO Bulletin, and confirmed that coverage is partial and sometimes rather arbitrary. Certainly, cost must make it impossible for the review journals to be comprehensive, and for every article to be abstracted with the same detailed attention. We feel, however, that the CD-ROM medium should be an opportunity for a new product, not identical in content with the journals, but exploiting its potential for holding a large number of entries in a very small space. Perhaps CABI can consider such a new approach.

Conclusion

For the EPPO Secretariat, having the CAB-abstracts in a computer-accessible form is a very efficient way to deal with our everyday work. It is also our opinion that CD-ROM will be the main medium for handling large amounts of data in coming years. This has been confirmed by discussions at EPPO's recent conference at Eslöv (SE) on "Computer-assisted advisory services for plant protection". We are therefore convinced that Plant Protection Services and Research Institutes in the EPPO region will follow this path and will obtain the necessary equipment. In this context, CABPESTCD will be a very valuable and rapid tool in their daily work.

Since budgetary problems are common in national and international organizations, change-over to CD-ROM as a medium could be accelerated by more reasonable pricing of the actual CDs and their updates.

Source: EPPO Secretariat, Paris (1992-12)