



ORGANISATION EUROPÉENNE ET MÉDITERRANÉENNE POUR LA PROTECTION DES PLANTES
EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION

EPPO

Reporting Service

Paris, 1992-07-01

Report n° 525

CONTENTS

- | | |
|-----------------------|---|
| 525/01..SE | - Interceptions of <u>Leptinotarsa decemlineata</u> and <u>Pseudomonas solanacearum</u> in Sweden |
| 525/02..TN | - <u>Aleurothrixus floccosus</u> , <u>Parabemisia myricae</u> and <u>Quadraspidiotus perniciosus</u> present in Tunisia |
| 525/03..TMSWXX | - Susceptibility of chrysanthemums to tomato spotted wilt virus |
| 525/04..TMSWXX/FRANOC | - Feeding of <u>Frankliniella occidentalis</u> on chrysanthemums and incidence of tomato spotted wilt virus |
| 525/05..NEOVIN/QP | - Quarantine Procedure for <u>Tilletia indica</u> at CIMMYT |
| 525/06..ERWIAN | - Billing's revised system for fireblight risk assessment |
| 525/07..ERWIAN | - <u>Erwinia amylovora</u> present in Zimbabwe |
| 525/08..ERWIAN | - EPPO Distribution List of <u>Erwinia amylovora</u> |
| 525/09..ERWIAM | - Recognition of <u>Erwinia amylovora</u> hosts |
| 525/10..CACYMA | - Draft data sheet for <u>Cacyreus marshalli</u> |
| 525/11..DACUCI | - Control of <u>Bactrocera minax</u> |
| 525/12..DACUCU/DACUDO | - <u>Bactrocera cucurbitae</u> and <u>B. dorsalis</u> in the Arabian Peninsula |
| 525/13..DACUCU | - EPPO Distribution List of <u>Bactrocera cucurbitae</u> |
| 525/14..DACUDO | - EPPO Distribution List of <u>Bactrocera dorsalis</u> |
| 525/15..RHAGSP | - Update on the occurrence of <u>Rhagoletis</u> spp. in Switzerland |
| 525/16..RHAGCO | - EPPO Distribution List for <u>Rhagoletis completa</u> |
| 525/17..RHAGIN | - EPPO Distribution List for <u>Rhagoletis indifferens</u> |
| 525/18..QP | - New EPPO Quarantine Procedures |





EPPO *Reporting Service*

525/01 SE....Interceptions of *Leptinotarsa decemlineata* and
Pseudomonas solanacearum in Sweden

The Swedish Board of Agriculture has informed EPPO that it has intercepted 5 consignments of potatoes (20 t each) due to infestation by *Leptinotarsa decemlineata* (EPPO A2 pest) from Bulgaria within the first week of June 1992). Swedish authorities fear that the warm spring climate has led to an epidemic development of the Colorado beetle development in South-East Europe.

Swedish quarantine authorities furthermore intercepted approximately 700 t of potatoes from Egypt due to the infection by *Pseudomonas solanacearum* (EPPO A2 organism).

Source: Swedish Board of Agriculture (1992-06)



EPPO *Reporting Service*

525/02 TN...*Aleurothrixus floccosus*, *Parabemisia myricae* and *Quadraspidotus perniciosus* present in Tunisia

At a seminar on harmonization of phytosanitary regulations held in Tunis on 1992-02-12/13, whose proceedings will shortly be published in Bulletin OEPP/EPPO Bulletin, it was reported that three quarantine pests have been introduced in recent years: *Aleurothrixus floccosus* (EC Annex II B), *Parabemisia myricae* (EPPO A2 List) and *Quadraspidotus perniciosus* (EPPO A2 List).

Source: Institut National Agronomique de Tunisie (1992-02)



EPPO *Reporting Service*

525/03 TMSWXX...Susceptibility of chrysanthemums to tomato spotted wilt virus

In Canada, 36 cultivars of florist's chrysanthemum (*Dendranthema grandiflora*) were compared in regard to their susceptibility to tomato spotted wilt virus (potential EPPO A2 organism).

The virus was more widely distributed in tissues of susceptible cultivars than in resistant ones. The virus also was detected more easily in leaves and stems showing symptoms. All cultivars, regardless of their degree of resistance to tomato spotted wilt virus, were infected latently. The latent infections were detected most easily in roots.

Source: Allen, W.R.; Matteoni, J.A.; Broadbent, B.A. (1990) Susceptibility of cultivars of florist's chrysanthemum to tomato spotted wilt virus. *Canadian Journal of Plant Pathology* 12, 417-423.

525/04 TMSWXX/Franoc...Feeding of *Frankliniella occidentalis* on chrysanthemums and incidence of tomato spotted wilt virus

The feeding damage of *Frankliniella occidentalis* (EPPO A2 pest) to 27 cultivars of florist's chrysanthemum (*Dendranthema grandiflora*) were defined and its correlation to the incidence of tomato spotted wilt virus (potential EPPO A2 organism) was assessed in Canada.

It was assessed that feeding damage on yellow flowering cultivars was significantly higher than those on white flowering ones during the pre-bloom period. Correlations between feeding damage and the incidence of tomato spotted wilt virus were only low and the authors suggest that the virus susceptibility of cultivars is epidemiologically more important than the feeding activity of *F. occidentalis*.

Source: Broadbent, B.A.; Matteoni, J.A.; Allen, W.R. (1990) Feeding preferences of the western flower thrips, *Frankliniella occidentalis* and incidence of tomato spotted wilt virus among of cultivars of florist's chrysanthemum. *Canadian Entomologist* 122, 1111-1117.



EPPO *Reporting Service*

525/05 NEOVIN/QP.....Quarantine Procedure for *Tilletia indica* at CIMMYT

Tilletia indica (EPPO A1 list) occurs quite widely in Mexico (see Reporting Service 513/06) and CIMMYT (Centro Internacional de Mejoramiento de Maiz y Trigo) has developed quarantine procedures for wheat seed batches sent to all parts of the world:

- 1) all such seeds are produced in areas free from *T. indica*
- 2) seed plots in these areas are sprayed twice during the season with propiconazole.

To avoid the risk of low-incidence contamination, e.g. by windborne teliospore from infested areas,

- 3) seed batches are treated in a specialized mechanized apparatus, first with a high pressure shower of water, than in a sodium hypochlorite bath (this treatment is effective against teliospores contaminating the seed surface)
- 4) seed batches are treated with carboxin + captan, plus chlorothalonil specifically against *T. indica* (replacing PCNB which was used previously).

Source: CIMMYT (1991)



EPPO *Reporting Service*

525/06 ERWIAM....Billing's revised system for fireblight risk assessment

Billing's revised system (BRS) for fireblight risk assessment, a modelling system to predict occurrence and damage caused by *Erwinia amylovora* (EPPO A2 organism) has been published in the Bulletin OEPP/EPPO Bulletin 22, 1-102.

The article which has a length of 102 pages is divided into 5 main chapters and an appendix:

1. Basic assumptions and rationale
2. Development and methodology
3. Evaluation of risk factors
4. Evaluation by geographical representation data
5. General discussion

Appendix

Abstracts of all chapters are provided in French and Russian.

Source: Billing, E. (1992) Billing's revised system (BRS) for fireblight risk assessment.
 Bulletin OEPP/EPPO Bulletin 22, 1-102

525/07 ERWIAM....*Erwinia amylovora* present in Zimbabwe

EPPO has been informed by the Ministry of Agriculture/Plant Protection Research Institute of Zimbabwe that *Erwinia amylovora* (EPPO A2 organism) is present in Zimbabwe with a limited distribution.

Source: Ministry of Agriculture/Plant Protection Research Institute of Zimbabwe,
 (1992-06)

525/08

ERWIAM...EPPO Distribution List of *Erwinia amylovora*

Due to the new record for *Erwinia amylovora* (EPPO A2 quarantine organism) the distribution list for fireblight has to be changed accordingly:

EPPO Distribution List: *Erwinia amylovora*

EPPO region: Belgium, Bulgaria (Bobev, 1990, personal communication), Cyprus (EPPO Reporting Service 457), Czechoslovakia (Kudela, 1988), Denmark, Egypt (new outbreaks from 1983, following a much earlier outbreak in 1964 - EPPO Reporting Service 467), France (except south-east) (Larue & Vincent, 1990), Germany, Greece (Psallidas, 1990), Ireland (EPPO Reporting Service 472), Israel (EPPO Reporting Service 459, Shabi _et al_., 1990), Italy (Puglia area only - EPPO Reporting Service 511), Lebanon (EPPO Reporting Service 498), Luxembourg, Netherlands, Norway (EPPO Reporting Service 471; Sletten, 1990), Poland, Sweden (EPPO Reporting Service 477), Switzerland (isolated incidents, not established - EPPO Reporting Service 506/07; Grim & Vogelsänger, 1989), Turkey (Oktem & Benlioglu, 1988), UK (including Northern Ireland - EPPO Reporting Service 484), USSR (Armenia only, according to EPPO Reporting Service 506/08, but there are also published records in Crimea), Yugoslavia (EPPO Reporting Service 509/14).

Africa: Egypt, Zimbabwe

Asia: China (unconfirmed), Israel (EPPO country), Lebanon (potential EPPO country), Korea Republic (unconfirmed), Saudi Arabia (unconfirmed), Turkey (EPPO country), Vietnam (unconfirmed), India (Papdiwal & Deshpande, 1978; on rose and therefore dubious). The record in Japan cited in the first edition of the EPPO data sheet (OEPP/EPPO, 1983) is an error.

North America: Bermuda, Mexico, USA, Canada.

Central America and Caribbean: Guatemala (unconfirmed), Haiti.

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 (1992-06)



EPPO *Reporting Service*

525/09 ERWIAM...Recognition of *Erwinia amylovora* hosts

The French Plant Protection Service, in cooperation with INRA and the Horticultural College in Angers, have produced (in French) a "Guide to the field recognition of the main host species of fireblight". Enforcement of regulations to limit the spread of *Erwinia amylovora* (EPPO A2 quarantine organism) depends on being able to distinguish host plants, and this publication would be extremely useful in all EPPO countries, whether they are seeking to prevent the spread of fireblight on their territories, or needing to certify material for export.

Source: French Plant Protection Service (1992-06)



EPPO Reporting Service

525/10

CACYMA....Draft data sheet for *Cacyreus marshalli*

At the 30th Meeting of the EPPO Working Party on Phytosanitary Regulations the participants decided to consider *Cacyreus marshalli*, a pest of *Geranium* and *Pelargonium* spp., as a pest of potential quarantine significance. The Working Party recommended that countries which import *Geranium* and *Pelargonium* spp. should thoroughly examine the material for eggs and larvae of the butterfly. They stressed the danger that the pest might spread from Mallorca to the continent by individual tourists carrying infected plant material.

A description of the pest is given in the attached draft data sheet provided for the Working Party

Identity

Name: *Cacyreus marshalli* Butler

Taxonomic position: Insecta: Lepidoptera: Lycaenidae

Synonyms: none known

Common Names: none known

EPPO Code: CACYMA

EPPO A2 list: candidate

Hosts

Geranium and *Pelargonium* spp. are the host plants of this butterfly.

Geographical distribution

The species is indigenous to southern Africa (Clark & Dickson, 1971). It was found in Spain (Mallorca, Balearic Islands) in 1988 and was first misidentified as *Lycaena boeticus* (Sarto i Monteys & Maso, 1991). It is now widespread on Mallorca. In 1991, one adult specimen of *C. marshalli* was found in Belgium (Troukens, 1991).

EPPO region: Spain (Mallorca only)

Africa: Mozambique, South Africa, Zimbabwe.

Biology

Little is known about the biology of *C. marshalli* since the butterfly was first found in Europe in 1988 and only correctly identified in 1990 (Eitschberger & Stamer, 1990). It obviously did not cause significant enough losses in its indigenous area, southern Africa, to justify specific research.

After its discovery in Mallorca, the Plant Protection Service of the province of Cataluña started a research project on the biology of the pest (Sarto i Monteys & Maso, 1992). The newly hatched larvae move into a flower bud by piercing a hole through the sepals. They remain concealed in the flower buds and feed on the flower tissue, where they produce a cavity as a result of their feeding. On reaching the third instar, the larvae leave the flower bud by initiating a gallery into the stem. At 20° C, the larvae complete their development to pupae in about 30 days and the pupal stage lasts about 17 days (Sarto i Monteys & Maso, 1992). At lower temperatures, development is slower and it is assumed that the pest cannot overwinter in colder regions. At laboratory conditions of 20° C, no diapause has been observed and the generations follow each other continuously (Maso & Sarto i Monteys, 1991).

Detection and identification

Symptoms

The damage becomes most visible during the hot season when the larvae are most active. Flower damage is the most visible symptom. Flowers can be totally eaten by the larvae. Damage can be seen on flower peduncles and is often associated with secondary damage by microorganisms which can also colonize the tissue around the entry hole of the larvae into the peduncles (Sarto i Monteys & Maso, 1991).

Leaves may be partially eaten by the larvae but this symptom is less frequent and can be confused with feeding by snails (Sarto i Monteys & Maso, 1991). Eggs can be found on leaves and flowers. Seriously affected plants may die as a result of the infestation.

Morphology

Eggs: whitish to light yellow or brown in colour; 0.5 mm in diameter x 0.3 mm in height.

Larvae: First instar larvae have an average size of 1 mm which increases to 2 mm within 8 days. Second, 3rd and 4th instars grow to 3, 6 and 13 mm, typically in 8, 8 and 9 days respectively. The colour varies, with extremes of yellow and/or greenish shades with or without pink markings (Clark & Dickson, 1971).

Pupae: Very hairy in shades of green, pale yellow or brown, with brown mottling and an average size of 9 mm (Clark & Dickson, 1971).

Adults: Female adults have a wingspan of 18-27 mm while male adults have 15-23 mm. *C. marshalli* has a bronze-brown colouring of the upper surface with white spots on the fringe.

Means of movement/dispersal

The potential for natural spread is obviously very low. The flight is short in duration, leisurely and interspersed with frequent rests. Eitschberger & Stamer (1990) therefore excluded the possibility that the introduction into Mallorca was due to natural dispersal. The most possible means of international dispersal is the movement of infested plant material, since larvae cannot easily be detected because of their habitat within the stem.

Pest significance

Economic importance

Little is known on the economic importance of this pest in its indigenous area. In Mallorca, 99% of pelargoniums are reported to be affected by *C. marshalli* (Sarto i Monteys & Maso, 1991).

Control

The Spanish authorities have regarded the eradication of this pest as impossible since chemical treatments seem to have very little effect on the stem-living larvae (Sarto i Monteys & Maso, 1992). The only stage in the life cycle of *C. marshalli* when insecticides are likely to show results is during the egg stage.

In Mallorca, no parasites have been found (Sarto i Monteys, pers. comm.). In South Africa, *Apanteles* spp. have been reported to kill third-instar larvae of the pest (Clark & Dickson, 1971).

Phytosanitary risk

C. marshalli has not yet been listed as a quarantine pest by any RPPO. The example of the rapid establishment of *C. marshalli* on Mallorca shows that the pest has potential to establish in the Mediterranean basin and can be considered as a real danger for the European mainland. Pelargoniums are extensively grown as ornamental plants almost throughout Europe, but Spain, France and Italy, as well as North Africa, are at highest risk since their climatic conditions would allow the pest to overwinter outdoors. Furthermore, breeding and propagation of pelargoniums plays an important economic role in this region. Elsewhere in Europe, the pest could establish in glasshouses.

The danger that the pest "jumps" from Mallorca to the mainland is rather high since Mallorca is one of the major tourist areas of Spain.

Phytosanitary measures

While the pest has a very restricted distribution in Europe, great vigilance is needed to prevent its establishment in new areas. Area freedom for planting material is the most obvious immediate measure. If the pest readily establishes and persists throughout the season in an area, it may be very difficult to ensure that nurseries producing pelargonium planting material can be certified free from the pest.



EPPO *Reporting Service*

Bibliography

- Clark, G.C.; Dickson, C.G.C. (1971) Life histories of the South African Lycaenid butterflies. pp. 270, Purnell Cape Town, 60-61.
- Eitschberger, U.; Stamer, P. (1990) *Cacyreus marshalli* Butler, 1898, eine neue Tagfalterart für die europäische Fauna? *Atalanta* 21 (1/2), 101-108.
- Maso, A.; Sarto i Monteys, V. (1991) Una mariposa amenaza al geranio europeo. *Ciencia y Tecnologia* 23 Noviembre 1991, p 9
- Sarto i Monteys, V.; Maso, A. (1991) Confirmacion de *Cacyreus marshalli* Butler, 1898 (Lycaenidae: Polyommatainae) como nueva especie para la fauna europea. *Boletín de Sanidad Vegetal Plagas* 17, 173-183.
- Sarto i Monteys, V.; Maso, A. (1992) Remarks on the biology of a lycaenid butterfly, pest of geraniums, new to Europe (Lycaenidae). Speech at the VIII European Congress of Lepidopterology, Helsinki, 19-23 April 1992.
- Troukens, W. (1991) *Cacyreus marshalli* Butler, 1898 aangetroffen in België (Lepidoptera: Lycaenidae). *Phega* 19 (4), 129-131.

Source: EPPO Secretariat, Paris (1992-06)



EPPO *Reporting Service*

525/11 DACUCI...Control of *Bactrocera minax*

In China, field studies were conducted to control *Bactrocera minax* (EPPO A1 List = *Dacus citri*) by the sterile male technique. 56.000 and 95.000 sterile males were released in two stages in an orchard containing 4800 ten year old citrus trees.

The infestation level of infested fruit was 0.2% and 0.005% in the treated orchard compared to 22.5% and 20-25% in a control orchard.

Source: Wang, H.S.; Zhao, C.D.; Li, H.X.; Lou, H.Z.; Liu, Q.R.; Kang, W.; Hu, J.G.; Zhang, H.Q.; Chu, J.M.; Xia, D.R.; Yang, R.X. (1990) Control of *Dacus citri* by irradiated male sterile technique. *Acta Agriculturae Nucleatae Sinica* 4, 135-138.



EPPO *Reporting Service*

525/12 DACUCU/DACUDO...*Bactrocera cucurbitae* and *B. dorsalis*
in the Arabian Peninsula

The Joint FAO/IAEA (Food and Agriculture Organization of the United Nations/International Atomic Energy Agency) Division of Nuclear Techniques in Food and Agriculture has informed EPPO that *Bactrocera cucurbitae* and *Bactrocera dorsalis* (both EPPO A1 pests) occur both in Oman and the United Arab Emirates.

Source: Joint FAO/IAEA Division, Vienna (1992-06)

525/13 DACUCU...EPPO Distribution List of *Bactrocera cucurbitae*

Due to the new reports of *Bactrocera cucurbitae* (EPPO A1 pest) in Asia the distribution is as follows:

EPPO Distribution List: *Bactrocera cucurbitae*

Asia: Bangladesh, Brunei, China (south coastal area), Hong Kong, India, Indonesia (East Timor, Sumatra, Kalimantan, Java, Sulawesi, Irian Jaya), Iran, Japan (Ryukyu Archipelago), Kampuchea, Laos, Malaysia, Myanmar (Burma), Nepal, Oman, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand, United Arab Emirates and Vietnam. In the Ryukyu Archipelago it was eradicated from Kume Island in 1978 and from the Miyako Islands in 1987, using the sterile insect technique

Africa: Adventive populations in Egypt (potential EPPO country), Kenya, Mauritius, Réunion, Tanzania.

North America: Trapped in the wild in USA (California) (Carey & Dowell, 1989), but eradicated (Spaugh, 1988). Adventive populations in Hawaii (since the 1980s).

Oceania: Papua New Guinea (including New Britain, New Ireland and Bougainville Islands). In the Solomon Islands it became established in the Shortland Islands group, where it has been subjected to an eradication campaign using a combination of bait spraying and male annihilation with cue-lure traps. Adventive populations in Guam; eradicated from the Northern Mariana Islands using the sterile insect technique, but re-established on Rota in 1981.

*This list replaces all previous EPPO Distribution Lists for *Bactrocera cucurbitae*!*

Source: EPPO Secretariat, Paris (1992-06)

525/14

DACUDO...EPPO Distribution List of *Bactrocera dorsalis*

Due to the new reports of *Bactrocera dorsalis* (EPPO A1 pest) in Asia the distribution is as follows:

EPPO Distribution List: *Bactrocera dorsalis*

Asia: Bhutan, China (south), India (north), Myanmar (Burma), Oman, Thailand (probably in north) and United Arab Emirates. As noted under Identity, records from commercial fruits in southern India are probably misidentifications of *B. caryae* (Kapoor) which is recorded from citrus, guavas, and mangoes; records from Sri Lanka are probably misidentifications of a species associated with mangoes; records from the Philippines are probably misidentifications of *B. occipitalis* (Bezzi), which attacks mangoes and probably other hosts, or a species which attacks *Artocarpus altilis*, mangoes and *Syzygium malaccense*; records for Indonesia, Malaysia and southern Thailand probably refer to two other species, one of which has a preference for attacking *Averrhoa carambola* (the carambola fly) and the other for attacking bananas, mangoes and pawpaws; the latter has often been misidentified as *B. pedestris* (Bezzi). These unnamed species will be described by R.A.I. Drew & D.L. Hancock (in preparation).

North America: Outbreaks in USA (California) eradicated. Reported in Hawaii since about 1945.

South America: Reports of *B. dorsalis* from northern South America (Suriname and French Guiana) refer to the carambola fly (see under Asia) rather than *B. dorsalis*.

Oceania: Guam since 1947. An outbreak on Northern Mariana Islands (Rota) was eradicated.

*This list replaces all previous EPPO Distribution Lists for *Bactrocera dorsalis*!*

Source: EPPO Secretariat, Paris (1992-06)



EPPO *Reporting Service*

525/15 **RHAGSP...Update on the occurrence of *Rhagoletis* spp. in Switzerland**

The Plant Protection Service of Switzerland has given further information concerning the occurrence of *Rhagoletis completa* and *Rhagoletis indifferens* (both EPPO A1 pests) in southern Switzerland. Both pests are now considered to be established in Switzerland, occurring widespread in Ticino canton.

Source: Plant Protection Service, Switzerland (1992-06)

525/16 **RHAGCO...EPPO Distribution List for *Rhagoletis completa***

After the notification of the widespread occurrence of *Rhagoletis completa* in Ticino canton in Switzerland the distribution of this pest is as follows:

EPPO Distribution List: *Rhagoletis completa*

EPPO region: Switzerland

North America: Mexico, USA

This list replaces all previous EPPO Distribution Lists for *Rhagoletis completa*!

Source: EPPO Secretariat, Paris (1992-06)

525/17 **RHAGIN...EPPO Distribution List for *Rhagoletis indifferens***

After the notification of the widespread occurrence of *Rhagoletis indifferens* in Ticino canton in Switzerland the distribution of this pest is as follows:

EPPO Distribution List: *Rhagoletis indifferens*

EPPO region: Switzerland

North America: Canada, USA

This list replaces all previous EPPO Distribution Lists for *Rhagoletis indifferens*!

Source: EPPO Secretariat, Paris (1992-06)



EPPO *Reporting Service*

525/18 QP...New EPPO Quarantine Procedures

A new set of EPPO Quarantine Procedures will be published in the Bulletin OEPP/EPPO Bulletin 22, 2.

The set will include:

- No. 38: *Aphelenchoides besseyi* - Test method for rice seeds
- No. 39: *Clavibacter michiganensis* subsp. *michiganensis* - Test method for tomato seeds
- No. 40: *Erwinia amylovora* - Sampling and test methods
- No. 41: *Glomerella gossypii* - Inspection and test methods for cotton seeds
- No. 42: *Liriomyza* spp. - Identification of *Liriomyza* spp.
- No. 43: Plum pox potyvirus - Inspection and test methods
- No. 44: *Pseudomonas syringae* pv. *persicae* - Sampling and test methods
- No. 45: *Xanthomonas campestris* pv. *vesicatoria* - Test methods for tomato seeds.

Source: EPPO Secretariat, Paris (1992-06)