

Data Sheets on Quarantine Pests

*Amauromyza maculosa***IDENTITY**

Name: *Amauromyza maculosa* (Malloch)

Synonyms: *Agromyza guaranitica* Brèthes

Taxonomic position: Insecta: Diptera: Agromyzidae

Common names: Chrysanthemum leaf miner, burdock leaf miner (English)

Bayer computer code: AMAZMA

EPP0 A1 list: No. 152

EU Annex designation: I/A1

HOSTS

This species is polyphagous within the Asteraceae. In the EPP0 region the potential host range would be ornamental plants and vegetable crops, particularly those grown under glass or as protected crops, for example *Aster* spp., chrysanthemums, *Dahlia* spp. and lettuces.

GEOGRAPHICAL DISTRIBUTION

EPP0 region: Absent.

North America: USA (Hawaii; outdoors in the eastern states, under glass in the northern states).

Central America and Caribbean: Bahamas, Barbados, Cayman Islands, Costa Rica, Cuba, Dominican Republic, Guadeloupe, Trinidad and Tobago (Trinidad only).

South America: Argentina, Brazil, Peru, Uruguay, Venezuela.

EU: Absent.

BIOLOGY

The biology of *A. maculosa* is not as well known as that of some other leaf miner species (e.g. *Liriomyza* spp.), and the following is a more general description, including information on *Liriomyza* spp.

Peak emergence of adults occurs before midday (McGregor, 1914). Males usually emerge before females. Mating takes place from 24 h after emergence and a single mating is sufficient to fertilize all eggs laid. Female flies puncture the leaves of the host plants causing wounds which serve as sites for feeding or oviposition. Feeding punctures cause the destruction of a larger number of cells and are more clearly visible to the naked eye. Males are unable to puncture leaves but have been observed feeding at punctures produced by females. In the laboratory, both males and females feed on dilute honey, and they have been observed to take nectar from flowers. On average, females live longer than males.

Eggs are inserted just below the leaf surface. The number of eggs laid varies according to temperature and host plant. Eggs hatch in 2-5 days according to temperature. The duration of larval development also varies with temperature and host plant but is generally 4-7 days at mean temperatures above 24°C (Harris & Tate, 1933).

This species usually pupariates externally, either on the foliage or in the soil just beneath the surface. Pupariation is adversely affected by high humidity and drought.

Adult emergence occurs 7-14 days after pupariation, at temperatures between 20 and 30°C (Leibee, 1982). At low temperatures emergence is delayed.

A. maculosa completes several generations in one year.

DETECTION AND IDENTIFICATION

Symptoms

Feeding punctures appear as white speckles between 0.15 and 0.13 mm in diameter. Oviposition punctures are smaller (0.05 mm) and are more uniformly round.

Mines are usually white with dampened black and dried brown areas. *A. maculosa* produces a blotch mine.

Morphology

Eggs

0.2-0.3 mm x 0.10-0.15 mm, off-white and slightly translucent.

Larva

A headless maggot; posterior spiracles of larva (and puparium) paired, each with three pores. The puparium is oval, slightly flattened ventrally, 1.3-2.3 x 0.5-0.75 mm, with variable colour.

Adult

Small, greyish-black, compact-bodied, about 2.3 mm in body length, 2.3-2.5 mm in wing length, scutellum black.

MEANS OF MOVEMENT AND DISPERSAL

Adult flies are capable of limited flight. Dispersal over long distance is on planting material of host species. Cut flowers can also present a danger as a means of dispersal; it should be noted, for example, that the vase life of chrysanthemums is sufficient to allow completion of the life cycle of the pest.

PEST SIGNIFICANCE

Economic impact

A. maculosa causes considerable damage to chrysanthemums and other glasshouse ornamentals (Weigel, 1923; Weigel & Sasser, 1923; Stegmaier, 1967). Damage is caused by larvae mining into leaves and petioles. The photosynthetic ability of the plants is often greatly reduced as the chlorophyll-containing cells are destroyed. Severely infested leaves may fall, exposing plant stems to wind action, and flower buds and developing fruit to scald (Musgrave *et al.*, 1975). The presence of unsightly larval mines and adult punctures in the leaf palisade of ornamental plants can further reduce crop value (Smith *et al.*, 1962; Musgrave *et al.*, 1975). In young plants and seedlings, mining may cause considerable delay in plant development leading to plant loss.

Control

Some insecticides, particularly pyrethroids, are effective but leaf miner resistance can sometimes make control difficult (Parrella *et al.*, 1984). Natural enemies periodically suppress leaf miner populations (Spencer, 1973).

Phytosanitary risk

A. maculosa is listed as an A1 quarantine pest by EPPO (OEPP/EPPO, 1984) and is also of quarantine significance for JUNAC. It has the potential to become a major pest of a wide

variety of ornamental or vegetable crops grown under glass or as protected crops in the EPPO region. This species could also cause damage to these crops grown in the open in the warmer parts of the region.

PHYTOSANITARY MEASURES

All stages are killed within a few weeks by cold storage at 0°C. Newly laid eggs are, however, the most resistant stage and it is recommended that cuttings of infested ornamental plants be maintained under normal glasshouse conditions for 3-4 days after lifting to allow eggs to hatch. Subsequent storage of the plants at 0°C for 1-2 weeks should then kill off the larvae of leaf miner species (Webb & Smith, 1970).

To avoid the introduction of *A. maculosa* (and the other leaf miner species *Liriomyza huidobrensis* and *L. sativae*; EPPO/CABI, 1996), EPPO (OEPP/EPPO, 1990) recommends that propagating material (except seeds) of celery, *Capsicum*, chrysanthemums, *Cucumis*, carnations, *Gerbera*, *Gypsophila*, lettuces, *Senecio hybridus* and tomatoes from countries where the pests occur must have been inspected at least every month during the previous 3 months and found free from the pests. A phytosanitary certificate should be required for cut flowers and for vegetables with leaves.

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