PRACTICE ABSTRACT

Monitoring, prevention and control of plum moth

Problem

Plum moth, syn. Red plum maggot (*Grapholita funebrana*) is one of the most destructive pests for plums in Europe. Yield losses of 40 to 95% have been reported. Usually, two generations of plum moths per year can appear. The flight of the first generation is from mid-May to the end of June, and the flight of the second generation is from the beginning of July to August. Larvae can cause significant fruit damage.

Applicability box

Theme

Crop production, Stone fruits

Keywords

Mating disruption, fruit quality, flavour

Context

Plum growing, temperate regions

Application time

Vegetative period, from May to August

Period of impact

Orchard lifespan

Solution

The most common control method is mating disruption with the use of pheromones. The pheromone dispensers are mounted beginning of April, prior to the flight period of the plum moth. Another strategy used in practice is direct control by applying products based on *Bacillus thuringiensis* ssp. *kurstaki*. The bacterium attacks the larvae on the fruits at the peak of larvae hatching.

Benefits

Pheromones used for *Grapholita funebrana* are not species-specific, and usage of pheromone dispenser lures will attract other *Grapholita* species including *Grapholita molesta* (Oriental fruit moth), causing similar damage.

Practical recommendations

- HOST PLANTS: Larvae can cause significant damage on main host plants as plums (*Prunus domestica*) and apricots (*Prunus armeniaca*). In addition, peaches (*Prunus persica),* almonds (*Prunus amygdalus*) and other *Prunus* species are also attacked.
- LIFE CYCLE: usually two generations per year
    - 1st generation: May to June
    - 2nd generation: July to August
    - In climatically favourable regions, a third generation may emerge around mid-August before the adult caterpillars of the last generation visit the overwintering sites.

Picture 1: Brown-gray adult moth, with diffused pattern. Photo: Vladan Falta, Biocont Laboratory, CZ.

Picture 2: Larvae feeding tunnels around the stone. Photo: Vladan Falta, Biocont Laboratory, CZ.

Picture 3: Pheromone dispensers. Photo: Radek Vávra, VSUO, CZ.

- DAMAGE:
  - 1st generation: Female moths lay eggs singly or in small groups on fruitlets (picture 1). Entrance holes, however, are barely visible. Larval feeding causes gummosis, exuding fluid from the entrance hole (picture 4). These are good detections for diagnostic observation. A premature colour change from green to violet and/or fruits drop.
  - 2nd generation: Females lay eggs in maturing fruits, and larvae feed throughout the fruit, travelling from the outer part to the stone region, forming filled tunnels and feeding inside. Usually, only one caterpillar develops per fruit. Fruits are inedible, unmarketable quality (picture 2).
- CONTROL AND PREVENTION: Use mating disruption with the pheromone dispensers

Picture 4: 1st generation damage of fruits. Exuding fluid from the entrance hole on a plum. Photo: Vladan Falta, Biocont Laboratory, CZ.

Pheromones to monitor *G. funebrana* can be placed in the same traps with pheromones of *Cydia pomonella*

- Placing sex pheromone dispensers (picture 3) along the edges of fields, rather than in the centre, is recommended
- Pheromone traps are not species-specific, catching many other *Grapholita* species, including males of *G. molesta*
- Late-maturing varieties are more damaged, early ripening varieties should therefore be grown.
- Direct control by the application of products based on *Bacillus thuringiensis* ssp. *kurstaki* onto the fruits at the peak of larvae hatching.

Further information

Further reading:

- Rauleder, H. 2002. Observations on the biology of the plum fruit moth (Cydia funebrana). Gesunde Pflanzen 54(8): 241-248.
- Sciarretta, A., Trematerra, P., and Baumgärtner, J. 2001. Geospatial analysis of Cydia funebrana (Lepidoptera: Tortricidae) pheromone trap catches at two spatial scales. American Entomologist 47(3): 174-184.

Weblinks:

- Plum Fruit Moth, *Grapholita funebrana*. Stone Fruit Commodity-Based Pest Survey. USDA.
- *Grapholita funebrana*. Trotricids of Agricultural Importance.
- Check the Organic Farm Knowledge platform for more practical recommendations.

About this practice abstract

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Holovousy 129, 508 01 Hořice, Czech Republic
+420 491 848 205, info@vsuo.cz
www.vsuo.cz

Author: Radek Vávra, Jiří Kaplan, Vladan Falta, Lukáš Maryška

Contact: radek.vavra@vsuo.cz

Review: Ilsa Phillips (IFOAM Organics Europe), Lauren Dietemann (FiBL)

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