

Butterflies

Biology

Butterflies (*Lepidoptera*)

Pyralidae (*Duponchelia fovealis* Zeller)

Cabbage Leafroller (*Clepsis spectrana* Treit.)

The problematic pest *Duponchelia fovealis* Zeller originates from Southern Europe. It is mainly found in cold greenhouse cultivation and in cooled Phalaenopses. The butterfly is about 19-21 mm long, brown to brown-black with lighter coloured rings on the hind body. A characteristic is the upwardly bowed hind body. The insects usually sit on the underside of the leaves and quickly fly away when they are disturbed. The caterpillars are 2-3 cm long, the basic colour is white with many small brown spots and the head is dark. The caterpillars eat hidden, usually on the substrate surface or in the upper soil layer. Their fine webs are visible there, under which the insects are safe and the caterpillars pupate there. The insect development in greenhouse conditions from egg to adult insect takes about 6-8 weeks with the active eating period of the larvae being 3-4 weeks and taking most of the development time.

Clepsis spectrana is a leafroller that often occurs in greenhouses in Central Europe. The butterfly is about 15-24 mm in size, ochre-coloured to yellowish with dark spots. The caterpillars are 20-25 mm long, brown to olive-green, the head is black.

Damage

Young leaves and blossoms can be gnawed by *Duponchelia*. On the substrate surface, fine webs are visible and the caterpillars eat below them. In some cases the larvae enter into the leaf base. *Clepsis spectrana* occurs in greenhouses from June onwards. The caterpillars eat the softer plant parts under fine webs, e.g. the blossoms of *Masdevallia*.

Control

To determine the degree of infestation, UV light traps can be installed in the greenhouses. Their flight activity may also be monitored with pheromones or yellow boards. Chemical treatment can be carried out with contact insecticides. Due to their hidden way of life, insecticide treatment must be repeated regularly until all insects are exterminated.

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Biological plant protection

Biological control is possible, e.g. using chalcid wasps (*Trichogramma* sp.). The small parasitic wasps are about 0.5-2.0 mm long and parasitize only the eggs of harmful butterflies. The parasitized eggs turn black and a short time after that the adult parasitic wasps emerge leaving a round hole in the empty eggshell. Most species are polyphagous, but prefer certain hosts. Some dealers of beneficial animals offer different mixes for commercial gardening purposes.

Hypoaspis predatory mites can be used to control various pests living in the ground. The mites open the eggs by biting into them shortly before the larvae emerge. Insect-pathogenic nematodes (*Steinernema* sp.) can also be used for biological plant protection. Repeated application can markedly reduce the number of larvae within a very short time.

Bacteria offer good results as insect pathogens. The *Bacillus thuringiensis* strain (the so-called B.t. products) are effective against harmful butterflies. The bacterium multiplies in infected insects and forms permanent spores there. During spore formation, protein crystals are produced (the so-called endotoxin crystals). If these bacterial products are eaten by sensitive insects, the crystals will destroy the cells of their intestines. They get into the body causing the insects to die within a short time. B.t. products are not contact products, but purely stomach insecticides. After having eaten the bacterium, the larvae will soon stop eating. The smaller and younger the larvae are, the quicker and more effective the used B.t. products will be.

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Liparis viridiflava: feeding damage caused by butterfly caterpillar



Masdevallia: feeding damage caused by butterfly caterpillar



Masdevallia: feeding damage caused by butterfly caterpillar



Oncidium: butterfly caterpillar at flower-stem



Phalaenopsis: card with *Trichogramma* parasitic wasps



Duponchelia fovealis in pheromone trap

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Duponchelia fovealis in UV-trap



Duponchelia fovealis, cocoon



Duponchelia fovealis, caterpillar below pot



Duponchelia fovealis, adult animals

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