

# Millipedes

## Biology

There are two different sub-groups of Myriapoda, i.e. millipedes (Diplopoda) and centipedes (Symphyla).

Millipedes are long and woodlouse-shaped animals whose outer skeleton is very hard due to chalk deposits. Their legs are all on the ventral side. The first and last body segments have no legs, the second to the fourth segments have one pair of legs and the other segments two pairs of legs each. The larvae have only six pairs of legs. Eggs are laid into the substrate, during the development cycle of several weeks the animals go through several phases. The animals often roll up, which is another characteristic. Centipedes need a high humidity, are nocturnal and hide under pots, in substrates and in similar places during daytime. They mainly live in the ground and are important humus producers. They usually feed on organic material and rarely on living plant parts, green plant parts are never eaten. A frequent visitor in greenhouses is the spotted millipede (*Blaniulus guttulatus* Bosc.). These animals are very slim, white to grey and about 10-18 mm long, live in the ground and roll up into spirals when disturbed. They live polyphagously on roots. Less frequent on orchids is the greenhouse millipede (*Orthomorpha gracilis* Koch), originating from tropical regions. It is about 16-23 mm long, dark brown to black and has 20 body segments.

Centipedes are small, whitish animals with only one pair of legs on each body segment. The posterior segment of a centipede has characteristic spinning glands and its head has a pair of multi-segment antennae. In contrast to the millipedes these very small animals have no chalk deposits. In greenhouses, the garden centipede (*Scutigera immaculata* Newp. = *Scolopendrella immaculata* Newp.) might cause damage. These approximately 6 mm long animals need a lot of humidity and are very often found in humus substrates. Larger colonies tend to occur in peaty ground.

## Damage

Young plant parts on the substrate surface and root tops may be gnawed in exceptional cases. The spotted millipede sometimes feeds on root necks of young plants and makes holes into the roots. In connection with wet substrates there might be considerable damage due to pathogenous ground fungi. Large populations of *Scutigera immaculata* might cause severe damage to young roots and sprouts. Large populations of millipedes and centipedes may also destroy the structure of the substrates and the consequence would be compression in the deeper part of the pot ground.

Animal pests

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## Control

Using clean and structure-stable substrates prevents infestation. There is a risk of accidental importation in substrates or young plants, sedation of substrates could be recommended.. Methiocarb-containing baits might be used to control snails and slugs.

## Biological plant protection

Watering with insect-pathogenous nematodes (*Steinernema feltiae*) proved to be successful against the larvae. This method may reduce the pest by 50-70% after the first 2-3 weeks. Treatment must be repeated after 4-6 weeks. Good results may also be obtained by using predatory mites (*Hypoaspis miles*, *H. aculeifer*). These soil dwelling beneficial animals are polyphagous, feed on many different soil pests and can easily be kept in greenhouses. 50-100 animals per m<sup>2</sup> should be released to control centipedes.

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Phalaenopsis: scraping damage caused by millipedes



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