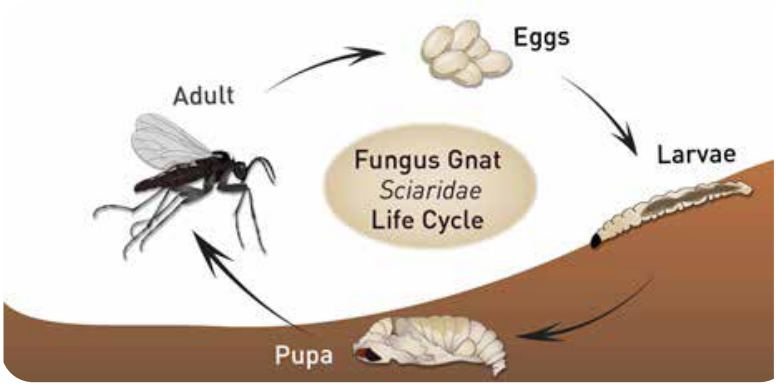
Quality of growing media matters

FACTSHEET

FUNGUS GNAT (SCIARA) IN GROWING MEDIA

Fungus Gnat (Sciara) regularly occurs in crops on mainly organic growing media. The larva of this fly can cause culture damage. Was the substrate already infected upon delivery? That remains to be seen, for the fly is indigenous troughout Western Europe. All about the risks and control.



Fungus Gnat (Sciara)

Sciara (Fungus Gnat) is a small black-grey fly that is 2 till 3 mm long. The lifetime of the Fungus Gnat is 3 to 7 days. During its life it can lay 150 white yellow eggs (0.12 mm). The eggs are mainly laid in soil or growing media. The Fungus Gnat should not be confused with, for example, the fruit fly or shore flies that live under nearly the same circumstances and are also common. The transparent white Sciara larvae with a black head hatch from the eggs. The larva of Sciara doesn't have legs and is up to 8 mm long. The larva passes through four different stages until the pop stage (see illustration). The transformation to pupa takes place in the soil or substrate. After 8 days, a new fly comes from the pupa. The pupa can survive a period of unfavourable conditions under which a winter period, contrary to the larvae and eggs. The time lapse for the different stages depends mainly on the temperature. The total life cycle from egg to fly takes 3 weeks under favourable conditions. However this could increase to up to 6 weeks in the winter period and under cold circumstances. The fly can spread well. The larva can move smaller distances.

For the floriculture industry and tree nurseries as well as consumers, two families are important. It concerns the *Sciaradae* and the *Bradysia*. The most occurring species that are all known under the name Sciara are: *Bradysia paupera*, *Termitosciara penicius* and *Phyxis*.

Fungus Gnat (Sciara) is regularly found in cultures in growing media and can cause various problems.The presence of Sciara can cause damage in the form of eating living plant parts. This concerns eating young soft plant parts, like root tips, and at the transition of plant and root. Growth inhibitions can occur and an angle of attack for diseases is developed. Furthermore the larvae and flies can transfer fungi like *Verticillium*, *Cylindrocladium* and *Pythium*. Spreading takes place from infected plants through the fly to healthy plants. Finally the presence of Sciara (flies) are considered very inconvenient.

The conditions that are ideal for Sciara, are a high humidity, dark surroundings and warm temperature. Sources of contamination for Sciara are developed by humid places with algae growth. This algae growth becomes a nutrient medium for Sciara. This could occur at dripping places in a greenhouse or in puddles. In addition to that, decomposing organic material such as, for example, rotting plant

remains is a good place for Sciara.

Fungus Gnat (Sciara) in growing media?

A frequently asked question is to what extent unused potting soils and growing media are already contaminated with Sciara. Because Sciara is indigenous in Western Europe and can occur anywhere inside and outside, contamination of organic growing media with Sciara before use can't be excluded. Organic products can be contaminated. Due to the increasing use of renewable organic raw materials in substrate mixtures, growing media become more receptive to organisms such as Sciara. These are raw materials consisting of young organic matter that are often attractive to Sciara.

What are the guidelines of the RHP quality mark?

On RHP locations where (organic) raw materials are stored and processed, measures are taken to minimize the risk of contamination with Sciara. Therefore, it is unlikely that major Sciara contaminations are caused by RHP-certified growing media. It is possible to analyse raw materials and growing media for the presence of Sciara. RHP has a test to do so. The experience is that contamination of unused RHP-certified growing media is rare, but it is not excluded and it may become more common in the future.

Advice for the user

The control of Sciara can occur in various ways. It is important to take care that the culture conditions are in such a way that Sciara is suppressed. The advice is:

- ✔ Prevent algae growth (e.g. wet top of potting ball, tables, floors, canvas, etc.)
- ✔ Prevent puddles
- ✔ Remove affected areas
- ✔ Clean up dead organic material and plant remains
- ✔ Use insect gauze for structural problems in sensitive cultures

Biological control of Sciara is possible with:

- ✔ predatory mites (*Hypoaspis* or *Macrocheles*)
- ✔ insect-parasitic nematode (*Steinernema*)
- ✔ beetles (*Atheta coriaria*)
- ✔ yellow sticky traps or a trap rack with glue
- ✔ UV lamps

In some cases it is possible to control the Fungus Gnat flies and larvae chemically. When suitable agents are used, the effect on the biological control must be taken into account.

- ✔ **Sciara often occurs in cultures on organic growing media**
- ✔ **The larva of the Fungus Gnat (Sciara) causes culture damage**
- ✔ **Sciara is indigenous in Western Europe and contamination of a culture on organic growing media can't be excluded**
- ✔ **(Hygiene) measures are taken at RHP locations to minimize the risk of contamination with Sciara**
- ✔ **It is unlikely that a major contamination is caused by RHP-certified growing media**