

Beneficial nematodes for the control of sciarid flies in mushrooms

Nemasys® M

Beneficial Nematodes

Sciarid flies (*Lycoriella spp.*) are the most serious pest affecting mushroom crops. Heavy infestations can significantly reduce yield.

Nemasys® M (*Steinernema feltiae*) is a natural soil dwelling nematode. Infective juveniles actively locate susceptible sciarid fly larvae (L2-L4 instars are highly susceptible) in the compost, using cues such as carbon dioxide to detect insect hosts and enter their bodies through their natural openings (mouth, spiracles, anus).

Once inside the host, the nematodes reproduce and release bacteria that the nematodes carry in their guts, causing the death of the sciarid larvae by septicemia (bacterial infection), normally 3-5 days after nematode application.

Thousands of new infective juveniles are produced when resources become limited inside the host and disperse in search of new sciarid larvae.

Nemasys M benefits

- Nemasys M quickly controls sciarid larvae at the time of application and is effective for at least 6 weeks.
- It is a natural product that is safe to users (no PPE required or re-entry interval), consumers and the environment.
- It presents no risk of pest resistance or reduction of crop yield. It can be used as part of an IPM program combined with exclusion measures.
- Nemasys M is an industry standard for sciarid control through much of Europe.

Pest biology

Sciarid flies are found on mushroom farms all year round, with many populations resistant to organophosphate insecticides.

Sciarid larvae can attack developing pin-heads and buttons, burrowing into the stalks and up into the cap, resulting in high levels of crop loss. In addition to the direct damage caused by the larvae, adult sciarids may carry fungal spores (e.g. *Verticillium*) as well as mites from crop to crop.



Sciarid fly larva on compost



Sciarid fly larva infested with *Steinernema feltiae*

Sciarid flies go through complete metamorphosis, passing through distinct egg, larvae (L1-L4 instars), pupae and adult stages. The time to complete its lifecycle is temperature dependent. The sciarid fly life cycle is approximately 28 days at 18° C. In common white mushroom (*Agaricus bisporus*) production, the temperature after casing is kept at 20-22° C for 7 days and then 18° C onwards.

Nemasys® M formulation

- Each pack contains infective juveniles of the species *Steinernema feltiae* in a water dispersible inert gel carrier. When mixed with water, the nematodes readily form a suspension that is easily applied to the crop.
- The product is available in packs of 150 and 250 million nematodes.

Nemasys M application

For best results apply Nemasys M routinely and preventatively.

Application Method Phase II Compost	Application volume	Dose
--	--------------------	------

First drench (at casing)	1 litre/m ² (minimum)	1,000,000/m ²
-----------------------------	-------------------------------------	--------------------------

Second drench (two days after casing)	1 litre/m ² (minimum)	1,000,000/m ²
--	-------------------------------------	--------------------------

Application Method Phase III Compost	Application volume	Dose
---	--------------------	------

First drench (four days after casing)	1 litre/m ² (minimum)	1,000,000/m ²
--	-------------------------------------	--------------------------

Second drench (five days after casing)	1 litre/m ² (minimum)	1,000,000/m ²
---	-------------------------------------	--------------------------

Product quality control

The BASF quality control department works closely with the production and dispatch departments to ensure high standards on every step of the fermentation process and final product.

Product packs are filled based on live nematode counts and must pass an infectivity bioassay before dispatch.

Emergency information (24 hour toll-free phone)
00 49 180 2273112

Technical enquiries 0845 602 2553 (office hours)