

nemastar®

Biological Control of Leatherjackets with *Steinernema carpocapsae*

AREA OF APPLICATION

nemastar® controls the early larval stages of crane flies (*Tipula* spp.) in turf. The major pest in turf is the univoltine *Tipula paludosa*, but also the bivoltine *Tipula oleracea* can cause damage. **nemastar** also provides good control of mole crickets (*Gryllotalpa gryllotalpa*) and cutworms (*Agrotis* spp.).

MODE OF ACTION

The active ingredient is the entomopathogenic nematode *Steinernema carpocapsae*, a naturally occurring enemy of various pest insects. Infective juveniles of the nematode actively search for host insects in the soil. Two days after invasion the insects die and the nematodes propagate inside the insect cadaver. After two weeks, thousands of infective juveniles emerge and hunt for the surviving larvae. **nemastar®** is safe for beneficial insects, plants and humans.

APPLICATION

Treat two weeks after peak of flight from mid-September until mid-October with 0.5 million nematodes per square meter and a minimum of 100 ml of water. Turf and soil must be moist and soil temperatures should be > 14°C for some hours after application. Irrigation immediately after application washes the nematodes through the thatch layer into the soil. If soil is dry, irrigation before and after application is essential.

EFFICACY

nemastar® is very efficient against young larvae (L1/L2) of *Tipula paludosa*, but less efficient against older larvae (L3/L4). In field experiments up to 82% of leatherjackets were killed by nematodes.

“I can recommend nematodes against leatherjackets to everyone. We had 1,000 larvae per m² on several greens last spring and almost none this year. Nematodes have done a good job...”

Simon van Dijk, Head Greenkeeper Golf Club Stromberg, Germany

**Further information needed?
Please contact us!
We will be happy to answer
your questions!**

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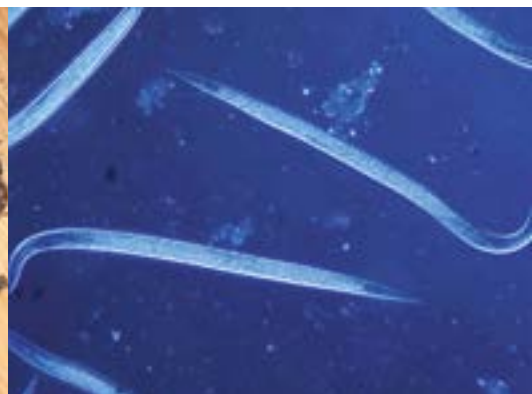
Crane fly
(*Tipula paludosa*)

They appear in August/September and lay hundreds of eggs in turf. Larvae hatch after 10 days.



Leatherjackets

All stages are less than 5 cm deep! L1- and L2-larvae consume green parts in autumn. L3- and L4-larvae feed on roots and leaves in spring.



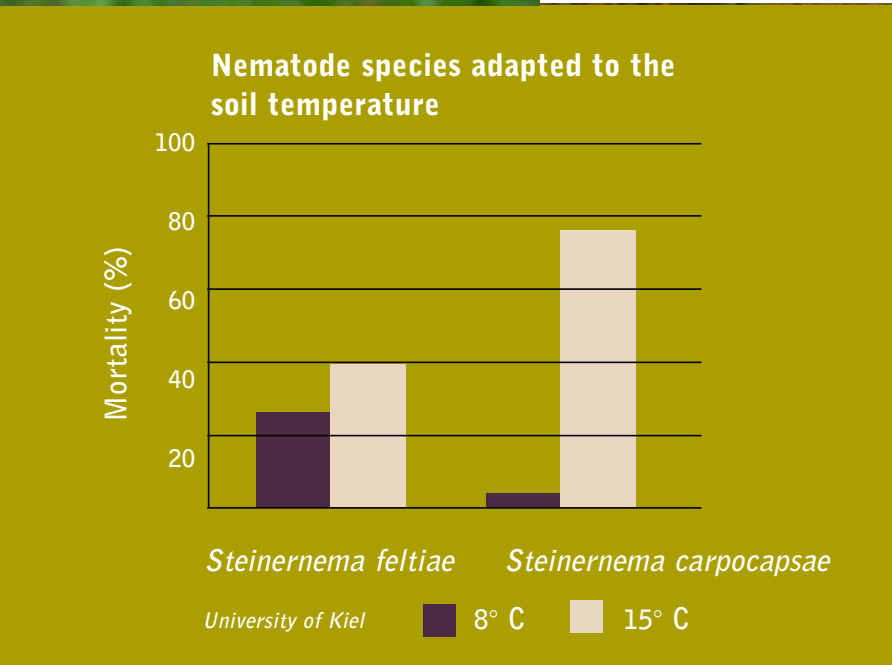
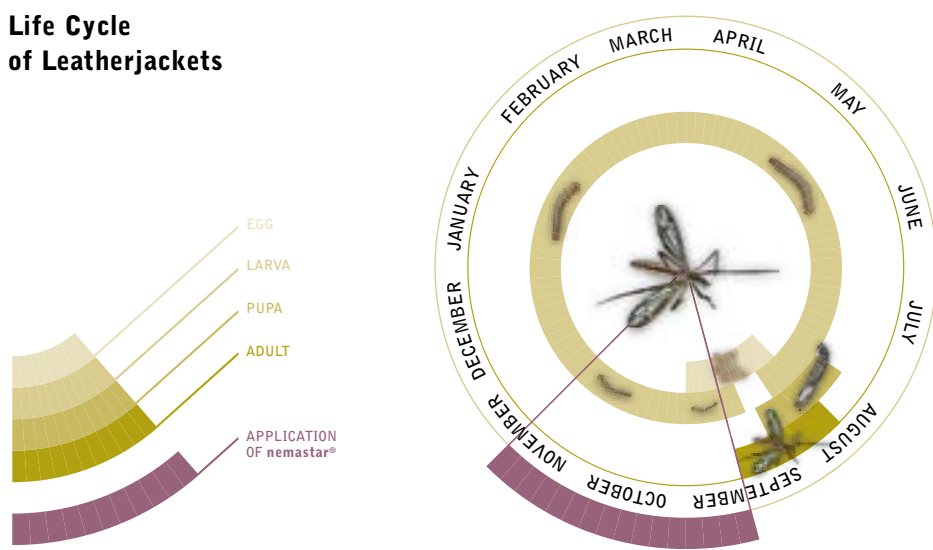
Beneficial nematodes
(*Steinernema carpocapsae*)

They kill L1- and L2-larvae in autumn within a few days. Soil temperatures must be above 14° C.



Arnoud de Jager

Life Cycle of Leatherjackets



CONTROL OF MOLE CRICKETS

nemastar[®]

Responsible. Innovative. Pioneering.

For effective control of mole crickets, cutworms and leatherjackets

CAUTION
CONTAINS BENEFICIAL NEMATODES
STORE AT 4-12° C
DO NOT FREEZE

e-nema[®] Biological Plant Protection