Product data sheet

Casea

Steinernema carpocapsae | Entomopathogenic nematodes



- For the control of various insect pests in stone fruits, outdoor vegetables and urban trees
- Effective in a wide temperature range
- Highly soluble biodegradable formulation with long shelf life
- Can be applied with regular spray equipment

Use for

Pests

- Caterpillars (Lepidoptera): Armyworms (*Spodoptera* spp.); Cotton bollworm (*Helicoverpa armigera*); Corn earworm (*Helicoverpa zea*); Tomato looper (*Chrysodeixis chalcites*); Cutworms (*Agrotis* spp.); Silver-Y moth (*Autographa gamma*); Box tree moth (*Cydalima perspectalis*); South American palm borer (*Paysandisia archon*);
- Beetle larvae (Coleoptera): Flatheaded root borer (*Capnodis tenebrionis*); Wireworms/Click beetles (*Agriotes* spp.); Flea beetles (*Phyllotreta* spp.); Common asparagus beetle (*Crioceris asparagi*)
- Beetle larvae & adults (Coleoptera): Red palm weevil (*Rhynchophorus ferrugineus*); South American palm weevil (*Rhynchophorus palmarum*)
- Crane flies/ leatherjackets (Tipulidae): *Tipula* spp.
- Bugs (Heteroptera): Sycamore lace bug (*Corythucha ciliata*)

How it works

Mode of action

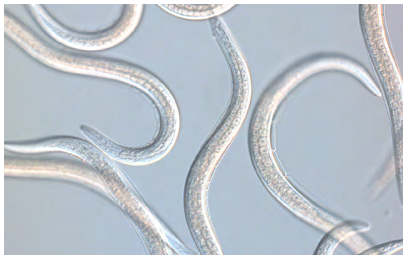
The nematodes enter the pest and release symbiotic bacteria into the pest's body cavity. These bacteria convert the host tissue into a food source, on which nematodes feed, develop, and reproduce inside the host. This kills the pest within a few hours to days after infection.

Visual effect

Infected pest insects in the root zone turn yellow to brown but may be difficult to find, due to rapid degradation. Infected foliar pests simply fall to the ground.

Life cycle

The third larval (or infectious juvenile) stage of the nematodes infect the pest through its natural openings and carries bacteria (*Xenorhabdus* spp.) into the insect body. The bacteria produce toxins that kill the insect and convert the host tissue into a food source for the infective juveniles, which further develop to fourth stage larvae. These larvae develop to male and female adults, which reproduce sexually. Females lay eggs and the first and second larval stage of the nematodes develop inside the host insect. The third larval stage is the only stage that can survive outside the host as it does not feed but uses internal reserves.



Steinernema carpocapsae

Product specifications

Pack size

3,000 million - 4 sachets of 750 million in a box.

Developmental stage

Infective third-stage larvae (L3).

Concentration

86% Steinernema carpocapsae – 14% inert biodegradable carrier.

Directions for use

Preparation

- Remove the sachets from the box and keep them at room temperature for 30 minutes
- Empty the contents of the sachets into a bucket containing at least 2 litres of water per sachet (water temperature: 15-20°C/59-68°F)
- Stir well and leave the contents to soak for five minutes
- Stir again and pour the contents of the bucket into the half-filled spray tank (except when tank mixing with a compatible product)
- Maintain agitation of mixture in the tank (e.g. with a recirculation pump)
- Fill the spray tank with the required amount of water
- If tank mixing with a compatible product, add Casea at the end to a fully filled tank
- Apply directly after preparation of spray solution

Application

- Nematodes can be applied using an airblast sprayer, a vehicle-mounted spray unit, through a sprinkler system, or backpack sprayer
- To avoid blockage, all filters should be removed, especially if finer than 0.3 mm (50 mesh)
- Use a maximum pressure of 20 bar/290 psi (on nozzle)
- The spray nozzle opening should be at least 0.5 mm (500 microns – 35 mesh) - preferably high flow rate cone nozzle types
- Continuous mixing should take place to prevent nematodes sinking to the bottom of the spray tank
- Avoid sprayers equipped with centrifugal or piston pumps
- Water tank temperature must not exceed 25°C/77°F and pH must be between 4 and 8
- Distribute the spraying solution evenly over the soil/medium surface

Application through irrigation systems:

- Pressure-compensated irrigation systems are recommended. If not available, spray or drench applications are recommended. For injection through Dosatron/Venturi systems, please contact your local Koppert representative for specific advice
- Spray the solution as soon as it is prepared and within a short timeframe. Do not store mixed suspensions

Dosage

Casea is typically applied against foliar pests at a rate of 1 to 3 million nematodes per liter of spray solution (average 1.5 billion /ha or 0.6 billion/acre) and against soil pests at a rate of 500 million to 3 billion per ha (200 million to 1.2 billion per acre).

Timing

Timing and frequency depend on the pest species and the crop environment (relative humidity, soil moisture and temperature). Consult a Koppert advisor or a recognized distributor of Koppert products for advice on the best strategy for your situation.

Environmental conditions

- *Steinernema carpocapsae* is active between 14-34°C/57-93°F but performs best at temperatures between 19-31°C/66-88°F
- Soil or air temperature below 5°C/41°F and above 35°C/95°F can be lethal
- Nematodes are susceptible to ultraviolet light (UV): do not use them in direct sunlight
- The moisture content of the soil must be kept high for several days after application. When possible, irrigate the crop before and right after application
- Adding an adjuvant and/or an anti-desiccant/humectant can be beneficial. Ask your Koppert representative/distributor for more information
- Spray in the evening (or morning in some cases) allowing nematodes to work for several hours within the optimal range of temperature and humidity, as described aboverange of temperature and humidity, as described above

Side Effects & Compatibility

- Pesticides can have (in)direct effects on biological solutions
- As a general rule for tank mixing, always add the nematodes to a fully filled tank containing the compatible product
- The product is safe for most beneficial insects and mites, but can have some effect on a few when in direct contact with foliar applied nematodes

Check the Koppert side effects database or contact your local representative for advice.

Product handling

Storage time after receipt
See expiry date on the box. On average product can be stored for 2-3 months.

Storage temperature
Refrigerate at a temperature of 2-6°C/35-43°F in a ventilated refrigerator/cold room.

Storage conditions
Upon receipt, take boxes out of the insulating shipment packaging. Keep in a dark, ventilated refrigerator/cold room until use.

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