



Precisely target pests with **RETALIATE-BN**

Our RetaliatE-BN series of products is a specific range of Beneficial Nematode species.

These species, known as Entomopathogenic Nematodes or EPNs, have a life cycle comprised of the egg stage, four juvenile stages, and the adult stage. These EPNs have a free-living third stage juvenile (J3), termed a dauer juvenile, that is the infective stage and therefore called an IJ. These IJs harbor a symbiotic bacterium that plays an essential role in subsequent stages of the life cycle.

EPNs mortality to insects is a 3-step process:

1

FIRSTLY,

the nematode must migrate, searching for the target host.

2

SECONDLY,

upon contact with the host, it must penetrate through natural body openings, such as the anus, mouth and/or cuticle.

3

FINALLY,

the nematode-bacteria complex should be able to overcome the insect's immune system and multiply, producing new generations of IJs.



The nematodes infect insects and inject the bacteria into their hemolymph (circulatory fluid). Therefore, the bacteria multiply and produce a range of low-molecular-weight compounds and insecticidal proteins. Insect usually dies within 48-72 hours and serves the nematodes as a nutrient source and habitat for reproduction. After acquisition of new endosymbionts, the nematodes leave their host and search for other prey.

RETALIATE-BN/Sc

TARGETS: GROUND DWELLING INSECTS & BORERS



Nematode Species

Steinernema carpocapsae

Symbiotic Bacteria

Xenorhabdus nematophila

Foraging Characteristics

Sit-and-wait or "ambush" forager, standing on its tail in an upright position near the soil surface and attaching to passing hosts, effective when applied against highly mobile insects.

Temperature Range

Active at temperatures of 65 - 90F

Primary Pests Controlled

Ground Dwelling Insects and Borers

**Dosages vary depending on pest species, infestation levels, and environmental factors. Consult your Account representative for pest specific dosages. Does not control the adult or egg stage of targeted insects.*

Tray Concentration

1 tray contains 1.5 Billion juvenile (IJ) *S. carpocapsae* OR 1 tray contains 500 Million juvenile (IJ) *S. carpocapsae* (packaged 2 trays per sleeve)

Dosage Recommendation:

1.5 Billion Trays

1 tray treats 10-15 acres

Dosage Recommendation:

500 Million Trays

1 tray treats 3-5 acres.

Based on 100 trees per acre. Add Retaliat at a rate of 100 gallons per acre. Apply as a low pressure spray to the point of runoff. Apply formulated solution on bark areas from ground level to scaffold limbs. Applications occur during May through September when signs of larvae present.

Shelf Life

4 weeks. Unopened tray. Keep refrigerated.

Other pests controlled:

• Armyworm (*Noctuidae*) • Banana Moth (*Opogona*) • Billbug (*Sphenophorus*) • Black Vine weevil (*O. sulcatus*) • Bluegrass weevil (*L. maculicollis*) • Cockroaches (*American, Asian, German*) • Chinch Bug (*Blissus*) • Clearwing Borer (*Sesiidae*) • Corn Earworm (*Helicoverpa zea*) • Cotton Bollworm (*H. armigera*) • Cranberry gridler (*C. topiaria*) • Cutworms (*Noctuidae*) • Dogwood Borer (*Selsiidae*) • Flea Larvae (*C. felis, canis*) • Fruit Fly (*Drasophylla*) • Giant Palmetto Weevil (*R. cruentatus*) • Mint Flea Beetle (*L. waterhousei*) • Mint Root Borer (*F. fumalis*) • Mole Cricket (*Neoscapteriscus spp.*) • Navel Orangeworm (*A. transitiella*) • Rotten Sugarcane Borer (*M. hemipterus*) • Shore Flies (*Ephydriidae*) • Sod Webworm (*Pyralidae*) • Strawberry Root Weevil (*O. ovatus*) • Tropical Sod Webworm (*H. phaeopteralis*)

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DIRECTIONS

- Follow directions for crop and nematode species dosages.
- Pre-irrigate soil if necessary to achieve uniform soil moisture and cool irrigation lines.
- Calibrate injection pump to evenly distribute Retaliat BN.
- Irrigate for 15-30 minutes prior to starting treatment to cool lines and establish a wetting pattern under plants.
- Add Retaliat BN to container containing no less than 5 gallons of water (temp should be 40-85F), stir contents, let sit for 5 minutes and mix again.
- Empty bucket into injection tank and add sufficient water.
- Irrigate after application with 0.5-1 inch of water.

BEST PRACTICES

- Store nematodes cool: 38°F/3°C until ready for use.
- Do not Subdivide. Once opened, use entire tray immediately.
- Store unopened. Follow product specific shelf life. Do not freeze.
- Allow packages to come to room temperature before mixing.
- Do not apply nematicide within 2 weeks before or after application.
- Avoid direct sunlight. Apply early morning or evening.
- Apply mixed solution as soon as possible. Do not leave nematode/water mixture sitting for more than 2 hours. Not aquatic nematodes.
- Remove all fine filters (<50 mesh).
- Ideal injection pressure is ~200 psi or below.
- Do not exceed 300 psi
- Maintain proper soil moisture for 2 weeks.
- Nematodes have limited horizontal movement, moving vertically in soil until they find a pest. Thorough coverage of the area is important for achieving control.



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MANUFACTURED BY:

Asymmetry

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