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Steinernema feltiae for Fungus Gnat Control

Protocol for Evaluating the Efficacy of NemaShield™ for the Control of Fungus Gnats (Sciaridae) in Greenhouses

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This protocol uses the potato wedge technique for baiting and counting fungus gnat larval densities over time. Fungus gnat larvae are attracted to the moisture and sugars in the potato. However, this method is labor intensive and requires a fairly large sample size to obtain meaningful data. Insect populations are not distributed evenly - the more pots you can sample, the lower your variability will be. I would recommend at least 10, and preferably 20, pots sampled in each of the treated and untreated areas. To reduce variability, use the same pots for sampling for the duration of the test.

Choose an area in the greenhouse where you can have two or more large benches close together. Environmental conditions should be similar; factors such as temperature, humidity, and soil moisture will have a great impact on insect populations. Prior to applying nematodes, determine the baseline level of fungus gnat infestation:

- Slice a fresh potato into wedges, about 1 inch thick at the thickest edge; keep the skin on
- For consistency, try to use wedges that are roughly the same size
- Press the wedges slightly into the potting mix surface, skin up
- After 48-72 hours, lift the potato pieces and record the number of fungus gnat larvae on the underside of each wedge
- Allow the larvae to crawl back into the pot; you can either replace the wedges or reuse them by slicing to expose new surfaces

Follow instructions for mixing and applying NemaShield.

At 3-5 days post application, place fresh potato slices in the **same** pots. After 48-72 hours, again, record the number of larvae trapped from each pot. Discard the potato slices.

At 10-12 days post application, repeat with fresh potato slices. Wait 48-72 hours and record the number of larvae in each disc.

This will give you 3 sets of data: one set of counts prior to the nematode application, 1 set about 7 days post application, and the final set about 14 days post application.