



Sampling for Nematodes

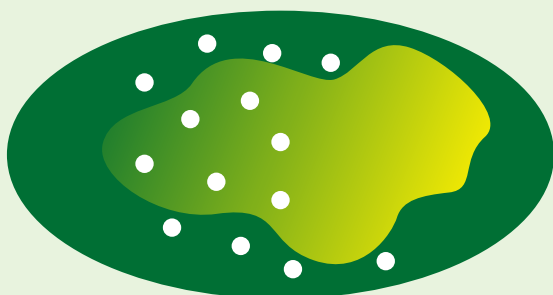
Nematode damage is often mistaken for other issues such as drought, disease and nutrient deficiencies, but nematodes are a real threat to your turf quality. Although most commonly found in sandy soils, nematodes can affect golf courses across the country. The only way to accurately diagnose nematode problems is to send a soil sample to a nematode laboratory for analysis. The lab will extract the nematodes from the soil and determine if they are present at potentially damaging levels.

Materials Needed

- Soil sampling tool
- Bucket
- Paper and plastic bags
- Shipping box

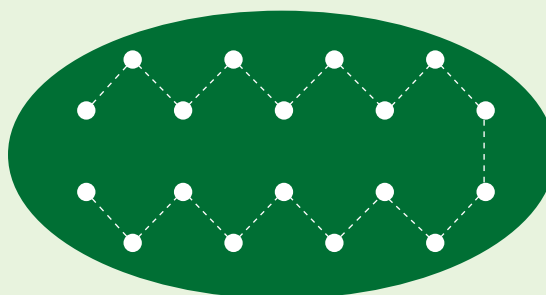
- **Find a lab:** Visit GreenCastOnline.com/NematodeKnowledge to find a lab in your area and follow the instructions on their website about submitting nematode samples. A downloadable form is generally required to be filled out and sent with your samples.
- **Plan your sampling:** Nematode populations can vary widely across the golf course, so several samples may be needed to identify problem areas. High value areas, like putting greens or tees, should be sampled individually. Larger areas, such as fairways, should be divided into about one-acre segments based on soil type or topography.
- **Avoid dead turf:** If grass is showing signs of severe stress or decline, do not take samples from these areas (fig. 1). Nematodes can only feed on live turf, so dead or heavily damaged areas will not provide accurate readings.
- **Collect 15-20 samples following a zig zag pattern:** To gauge the average population in the area, samples should be taken across turf in a zig zag pattern (fig. 2). Nematodes can be unevenly distributed across healthy turf, so it is important to take several samples to gain an accurate count.

Figure 1: Avoid Dead Turf



Samples from turf showing signs of stress should be taken from the outer areas.

Figure 2: Sample Healthy Turf



Follow a zig zag pattern when sampling healthy turf.

- **Sample to the current depth of the root system:** Nematodes are most abundant where active root growth is occurring. Collecting the samples too deep or too shallow may yield inaccurate results.
- **Collect cores in a bucket:** For more efficient sampling, bring a bucket along with you to deposit each core as you go. Only combine samples from the same area of the golf course (i.e. tees, greens and fairways).
- **Bag it immediately:** Place samples in a plastic bag that can be sealed or tied to prevent drying out and to avoid contamination. Label the bags with the area of the course the samples came from.



Using a soil probe, sample to the current depth of the root system.



For more efficient sampling, collect cores from the same area of the golf course in a bucket.

- **Keep out of sunlight:** It is important to get the samples out of the sun and into a cooler, shaded place as soon as possible. They do not need to be kept on ice, but an air-conditioned room is recommended. Placing your plastic bags into paper bags will also help protect your samples from light.
- **Send it the same day or next day:** The longer the samples are in transit, the less viable they will be.

Nematode laboratories typically report their results as the number of each nematode species per 100 cubic centimeters (ccs) or 500 ccs of soil. These results are then compared to damage thresholds established for each nematode. If one or more nematodes are above threshold levels, a nematode control program is recommended. If the results reveal nematodes at damaging levels, season-long control programs are available at GreenCastOnline.com/Programs.¹

Although a laboratory test is necessary to diagnose nematode problems, this is not always the best way to judge the performance of a nematicide program. Turf quality and growth, response to fertilizer applications, stress and drought tolerance, and root development are more reliable. Nematode populations can fluctuate dramatically over time, so sampling treated and untreated areas at once is the only way to determine if treatment is reducing the nematode populations.



¹Available in states where Divanem™ nematicide is registered for use/sale.

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