

## SOIL SAMPLING FOR VERTICILLIUM AND NEMATODE ANALYSIS

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Even in fields where plant-parasitic nematodes and verticillium are present, fumigation does not always pay. Soil samples can be taken to assess the extent of the problem. The best times to sample are in May/June and in September/October. Try to sample at the same time of year each time, using the same laboratory, so that you can compare the counts from year to year. Counts will be lower in the spring than in the fall.

You can use a regular soil probe for sampling, but sample 8-10" deep. Discard the top inch or two of soil as populations are usually low at the soil surface. You want the sample to be from the main root zone. Many soil laboratories as well as the Pest Diagnostic Clinic at the University of Guelph provide nematode and verticillium count services. For more detailed information on sampling, see the OMAFRA factsheet "Sampling Soil and Roots for Plant Parasitic Nematodes", Order # 06-099. You can find it online at <http://www.omafra.gov.on.ca/english/crops/facts/06-099.htm> or call the OMAFRA Agricultural Information Contact Centre at 1-877-424-1300 to get a printed copy. It is also a good idea to speak with someone at the lab where you will be sending the samples to determine how big a sample they need and how it should be packaged and handled. You can also find out the services they provide (eg. verticillium plate count or molecular detection).

It is important to get the samples to the lab as soon as possible after collection – by the next day if possible. They should be put into a cooler as soon as they are collected, then stored at 5-10° C until delivered to the lab. They must not be exposed to extreme heat, freezing temperatures, or sudden changes in temperature. Do not let the samples dry out. Live nematodes are required for the count.

Thresholds for verticillium and nematode counts on solanaceous crops, based on spring sampling:

Economic damage predicted if:
• 2,000 or more root-lesion nematodes/kg of soil
• 1,000 or more root-knot nematodes/kg of soil
• 12 or more <i>Verticillium dahliae</i> colonies/g of soil
• 200 or more root-lesion nematodes/kg of soil AND
• 6 or more <i>Verticillium dahliae</i> colonies/g of soil
• 100 or more root-knot nematodes/kg of soil AND
• 6 or more <i>Verticillium dahliae</i> colonies/g of soil

If the decision is made to fumigate, leave a non-fumigated strip in the field and assess the yield impact at harvest. Fumigation is expensive and you want to be sure it pays.