

# Instructions For Soil Samples

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## How to Collect Soil Samples Suitable for Analysis for Plant Parasitic Nematodes

The Department of Plant Pathology, University of Minnesota, is now operating a nematode identification laboratory. The numbers and kinds of plant parasitic nematodes present in a 100 cm<sup>3</sup> (one-fifth pint) sample of soil are determined using techniques most suitable for Minnesota soils and nematodes. The following information is presented so that soil samples collected will be suitable for analysis and the results will accurately reflect the true plant parasitic nematode population in the sampled area. Further information about plant parasitic nematodes in Minnesota may be obtained from Plant Pathology, Fact Sheet No. 31, "Plant Parasitic Nematodes", available in the Bulletin Room, University of Minnesota, St. Paul, Minnesota 55108.

## Sampling Techniques - General Considerations

Many different species of plant parasitic nematodes are native to Minnesota and can live in any soil that will support plant growth. Although these nematodes may be found as deep in soils as plant roots penetrate, the largest populations are typically present in the root zone about 2-10 inches (5-25 cm) below the soil surface. Plant parasitic nematodes are usually not uniformly distributed across a field or even in an area as small as a home lawn or golf green. Instead they are often most numerous in specific locations of limited area. To obtain a true picture of plant parasitic nematode population in a lawn, green, greenhouse bed, orchard or farm field, individual samples should be taken from problem areas where plant growth and/or yields have not been satisfactory as well as from areas where growth and/or yields are "normal".

The size of plant parasitic nematode populations often is larger in late June or early July and in September or early October than at other times of the year. Since soil texture can also affect the size of the nematode population developing in or around the roots of any host plant, a soil sample ideally should be collected from an area that is essentially uniform with regard to soil type, elevation, and drainage. The root-knot nematode is difficult to detect in Minnesota soils while crops are actively growing. Soil samples may be collected whenever the soil is not frozen or excessively wet.

## Sampling Techniques - Specific Recommendations

With a 1-inch diameter (2.5 cm.) soil tube, collect 10 soil subsamples and combine them as one sample in a sturdy plastic bag. Samples from grass areas should be taken where root development occurs, usually no deeper than 4-6 inches.

The total volume of soil, including any root fragments, obtained by combining the 10 subsamples should be between one pint and one quart (500-1000 cm<sup>3</sup>). The plastic bag should be carefully sealed so that the soil does not dry out and identified, on the outside, with the sample number or location, sampling date, and collector's name and address.

The number of samples to be collected in a plant parasitic nematode survey of a field or other growing area will vary according to the number or problem areas. When a turf area must be certified as being free of a given plant parasitic nematode, a large number of samples must be collected. Specific instructions for the collection of such samples may be obtained by contacting the Plant Nematology Laboratory, Room 110, Stakman Hall, U of M, St. Paul, Minn. 55108. All soil samples should be protected from exposure to high temperatures or direct sunlight and should be delivered as quickly as possible after collection to the above address together with a check made out to the Dept. of Plant Pathology to cover the processing fee of \$3.00/per sample. The results of the analysis, which will normally be available in 2 weeks, will be mailed to the individual who submitted the sample