ALABAMA COOPERATIVE Extension SYSTEM

ALABAMA A&M AND AUBURN UNIVERSITIES

ANR-114

Collecting Soil And Root Samples For Nematode Analysis

Why Sample For Nematodes?

Several kinds of plant parasitic nematodes attack Alabama's field crops, gardens, and landscape plantings each year. Crop losses caused by nematodes nationwide are estimated at around 5 to 10 percent annually. In the Southeast, where environmental conditions favor growth and reproduction of nematodes, losses are even higher. The six most damaging nematode species that affect Alabama growers are soybean cyst nematodes, lesion nematodes, stunt nematodes, lance nematodes, and the southern and peanut root knot nematodes.

Symptoms caused by nematodes are usually not specific enough to permit diagnosis by examination of infected plants. Chlorosis (yellowing), stunting, early wilting, and reduced yields are all frequently associated with nematode injury, but also may be caused by other factors. **Accurate diagnosis of nematode-induced disease or injury therefore usually requires soil laboratory analysis. Before valid control recommendations can be given, the specific types and numbers of nematodes present must be determined. This requires proper collection of soil and root samples representative of the problem area.**

When To Sample

Research at Auburn University shows that in general the best time to sample fields for nematodes is August through October. During this period soil nematode populations are at their highest level and are most easily detected.

The worst time to sample for nematodes is in late winter through early spring. Nematode populations are at their lowest level during this period and may not be detected in the sample.

Recommended Sampling Periods For Specific Crops.

Crop	Best Time For Sampling
Corn	August-October
Cotton	September-October
Peanuts	August
Soybeans	September-October
Tomatoes	June-September
Potatoes	May-August

Where And How To Sample

Field Crops

Fields where crops have been grown repeatedly should be tested every 2 to 3 years for nematodes. In this way, a population of destructive nematodes may be detected prior to crop losses. This is particularly true where crop rotation is not practiced. For sampling, fields should be divided into 5- to 10-acre sections. Collect 20 or more random samples of soil from each section. Take samples from the top 8 to 10 inches of soil using a soil probe or shovel. Soil should be taken directly from the root zone if plants are still present. Mix samples thoroughly and remove 1 pint for the laboratory analysis. **Do not** collect samples when soil is dry or extremely wet, since nematode populations are usually low under these conditions.

When problem areas are present in the field, samples should be taken to determine if nematodes are the cause. Samples of moderately affected plants should be taken since nematode numbers are usually low beneath severely injured or dead plants. Samples should consist of roots and soil from several plants. Also, it is always a good idea to sample from an area where plants are unaffected. Keep samples separate and mark them "good area" and "bad area."

Pasture, Turf, And Lawns

When sampling lawns, pastures, or other areas in sod, take samples from the top 5 inches of soil. The same sampling techniques described under *Field Crops* should be followed here.

Trees And Shrubs

Take samples (soil and root) from the upper 12 to 16 inches of soil directly beneath the drip line. Collect several sub-samples from each tree or shrub and mix thoroughly. Remove 1 pint for mailing. Since some plants may have high nematode populations without displaying adverse aboveground symptoms, soil under nearby healthy looking trees should also be sampled. Indicate "healthy" and "diseased" on the samples.

Home Garden

When nematodes are suspected, a representative soil and root sample should be taken. Sample the top 8 to 10 inches of soil for gardens. Additional information on nematodes in the home vegetable garden is available in Circular ANR-30, "Nematode Control In The Home Garden."

Packaging And Sending Samples

Soil samples should be placed in a plastic bag, sealed tightly to prevent drying, and placed in a nematode sampling carton. Sample cartons are available from your county Extension office. Sample number and origin should be recorded on each carton. If samples are not mailed immediately, store at 55°F. Avoid placing the sample in the hot sun or in a closed automobile since nematodes are adversely affected by extreme temperatures. Samples stored under such adverse conditions can give inaccurate results, which lead to inappropriate recommendations.

Labeling

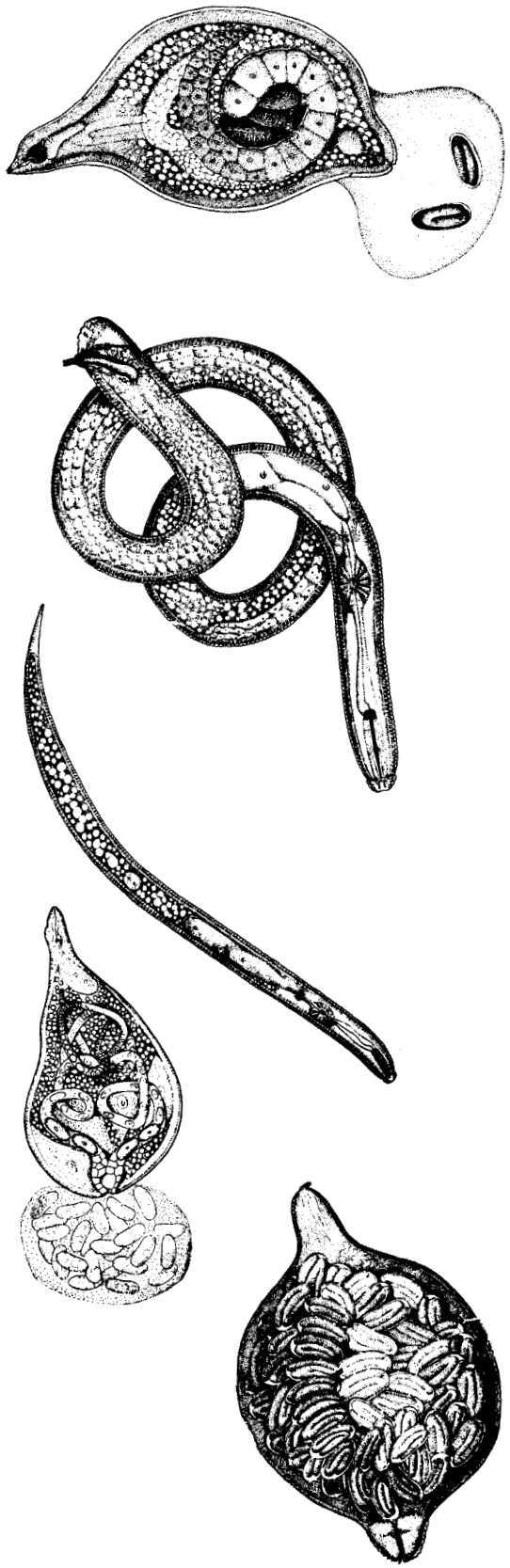
Keep written records of the number and origin of each sample. In order to make a useful recommendation, the following information **must** be given: (a) previous crop history and (b) crop to be planted. This information, along with the name and address where lab results are to be mailed, can be placed on the "Information Sheet For Nematode Soil Samples" (Form ANR-F7), available at county Extension offices.

Mailing

Mail samples to the Plant Diagnostic Laboratory, 101 Extension Hall, Auburn University, Alabama 36849-5624.

Service Charge

The service charge for nematode soil testing is $10.00.



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For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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