

Plant Diagnostic Lab

How to Submit Samples

Plant Disease and Problem Diagnosis
Soil Nematode Analysis
Insect Identification
Plant Identification

The Plant Diagnostic Labs of Auburn University are located on the Auburn campus and at the Birmingham Botanical Gardens. Lab services include diagnosis of plant diseases or other problems using lab techniques of microscopy, culture work, or serology. Other techniques are used for some specific situations. When diagnoses are made, control recommendations may be given. Soil nematode analysis and insect identifications are performed at the Auburn Plant Diagnostic Lab.

Plant Disease and Problem Diagnosis

When submitting plant samples for diagnosis, consider proper methods of collecting, packaging, and mailing. A \$10 to \$25 fee is charged for each sample analyzed. Detailed instructions for submitting samples are in this brochure.

Collect plant sample.

- Collect intact plants, if possible. Include roots because above-ground plant symptoms may reflect a root problem. Dig out, *don't pull up*, the plants, and leave soil attached. If intact plants cannot be collected, include plant parts that show damage. If possible, collect several plants or plant parts (fruits, nuts, twigs, leaves) representing different stages of the disease.

www.aces.edu

Package and mail specimens.

- Complete an Insect Identification Record, available from your county Extension agent, with as much information as possible. Include the following: date collected; place collected including address and type of host or site (crop, yard, home, person); exact host or crop; extent or type of damage; name of person who collected the insect.
- Place the insect container or package in a mailing tube or other protective package and mail to the Plant Diagnostic Lab at Auburn University.

For more information, contact your county Extension office. Look in your telephone directory under your county's name to find the number. For information about the Auburn lab see <http://www.aces.edu/dept/plantdiagnosticlab/> or call (334) 844-5507 or (334) 844-5508. For the Birmingham lab, see <http://www.aces.edu/plantlabbbham/> or call (205) 879-6964.



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To identify plants, a complete plant or a specimen containing leaves, stem, roots, flowers (or seed heads in the case of grasses or grass-like plants), or fruit is absolutely necessary. The success of each identification depends on the condition of the plant material at the time of identification. Decomposed, dry, or incomplete plant specimens make identification difficult. Adequate specimens with flowers or fruit usually produce positive results.

Additional Information

The following information should be included with each specimen:

- Location or crop where the plant was collected: roadside, forest area, cotton field, edge of pond, St. Augustine lawn, fescue pasture.
- Any other pertinent information that might influence the control recommendation. This might include location and proximity of desirable plants in the area; use of nearby pond, such as swimming, fishing, or irrigation; size and degree of weed problem.

Insect Identification

Insects are initially identified at the Plant Diagnostic Lab at Auburn University. The samples are then referred to an Extension entomologist.

- Collect whole insects in good condition.
- Collect as many insect stages as possible: eggs, larvae, pupae, and adults.
- Place the insects in 70 percent isopropyl alcohol immediately. Keep moths and butterflies intact in small containers or wrapped with plastic or paper.
- Spiders should be collected alive, dropped into hot (180 degrees F) water, and transferred to 70 percent isopropyl alcohol after cooling.
- If the insect was causing plant damage, include a plant specimen showing evidence of the plant injury. See procedures for plant problem diagnosis for details.

- When collecting spotted leaves from large woody ornamentals, collect 10 to 20 leaves that contain at least 20 spots or lesions.
- When collecting stem, branch, or trunk lesions or galls, collect at least 5 or more samples of the damage.
- When collecting lawn or turf specimens, take a sample from the edge of the affected area, providing both diseased and healthy plant materials. Samples should be about 8 to 10 inches square by 3 inches deep.
- If you suspect a soil nutritional problem, send 1 pint of soil from the affected area and 1 pint of soil from the unaffected area. Also send foliage samples from both the problem area and from the healthy area. Send enough to fill an 18 x 12-inch paper bag.
- *Keep specimens cool if they must be held before packaging.*

Package the sample.

- Package specimens immediately after collecting them.
- When you collect whole plant specimens, wrap the roots in a plastic bag so the foliage is not mixed with soil. This is especially important for field crops when nutritional foliage analysis is desired. Tissue analysis will not be accurate if soil contaminates the foliage.
- Enclose the plant specimen with plastic-wrapped roots in a large plastic bag. Do not wrap plants in a moist or wet paper towel.
- When collecting plant foliage or foliage segments, enclose sample in a plastic bag. Seal the bag. See below for instructions for collecting fleshy fruits and vegetables.
- Wrap fleshy fruits and vegetables, such as tomatoes, cabbage, Brussels sprouts, or broccoli, in several layers of newspaper. Do not place them in a plastic bag.
- When sending a soil sample with the plant specimen, place the soil in a separate plastic bag.
- Pack the specimen well in a sturdy container to prevent crushing. Padded envelopes and boxes work well.

- Provide as much information as possible using the diagnostic questionnaire (Form ANR-89 or 89B) available from your county Extension agent. If you need more space, use additional sheets of paper.
- Keep plant specimens cool if they must be held before mailing.

Mail or hand deliver sample to the following:

The Plant Diagnostic Lab
ALFA Agricultural Services and
Research Building
961 S. Donahue Drive
Auburn University, AL 36849-5624

Or, if you are located in or adjacent to Jefferson County:

The Plant Diagnostic Lab
C. Beaty Hanna Horticulture and
Environmental Center
2612 Lane Park Road
Birmingham, AL 35223

If possible, mail your specimens on Monday or Tuesday so they will not be delayed by the weekend. Diagnosis is not possible on decayed samples.

Service charges for plant disease diagnoses are determined by procedures done:

Homeowner samples: usually \$10 to \$15

Commercial samples: usually \$20 to \$25

Some molecular analyses are \$30. The client would be consulted before analysis is done.

Soil Nematode Analysis

Poor plant growth may be caused by a variety of root or soil problems including plant parasitic nematodes in the soil. Confirmation of a nematode problem requires a soil nematode analysis.

Collect soil sample.

- Collect 1 pint of soil from the root zone area of affected but not dead plants. Repeat this procedure in several locations in a suspect field. Thoroughly mix the soil in a bucket or similar container.

- Do not collect extremely wet or dry soil. Dry soil is not acceptable for nematode analysis because the nematodes quickly die and decompose.
- For best results, collect soil samples in late summer and fall, before cold weather arrives. During the cold winter months, many nematodes exist as eggs that cannot be detected by our analysis methods.

Package sample.

- Immediately after mixing, place 1 pint of soil in a plastic bag and seal.
- Do not expose soil samples to extremely hot or cold temperatures.
- Do not allow soil samples to become dry.
- Place the plastic-wrapped soil in a nematode soil carton and provide the requested information. Cartons are available from your county Extension agent.
- Complete the nematode analysis questionnaire (Form ANR-F7), available from your county Extension agent. Always indicate what crop is to be grown. Control recommendations cannot be made without this information.

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Mail samples during the first part of the week. Samples mailed on Thursday or Friday usually remain in the post office during the weekend. A \$10 or more fee is charged for each sample analyzed.

Plant Identification Referrals

Plant specimens for identification are referred to the appropriate Extension agronomy or horticulture specialist. Weed identifications should be sent directly to Extension weed scientists. Indicate the infested crop, such as grapes or cotton, and send to **Extension Weed Scientist, Extension Hall, Auburn University, AL 36849.**