

Due to Funding Restrictions, the PPC Cannot Provide...

- Identification of molds or bacteria from households, water, or air.
- Pesticide residue determinations (Contact the SC Department of Agriculture for this service. *If you suspect pesticide misuse, please contact the Clemson University Department of Pesticide Regulation at 864-646-2150*).
- Identifications of human or animal pathogens (disease causing organisms).
- Identification of improperly packaged insect samples.
- Nematode speciation; identification is only to genus level.
- Species identification of most pathogens, identification is generally to genus only.
- Positive identification of certain viruses.

Service Fees Per Sample

\$10.00 — Plant Problem/Disease Diagnosis and Control

\$10.00 — Turf Problem/Disease Diagnosis and Control

\$10.00 — Plant/Weed Identification and Control

\$10.00 — Insect Identification and Control

\$20.00 — Outside SC for the above tests and identifications

\$10.00 — Nematode Standard Assay

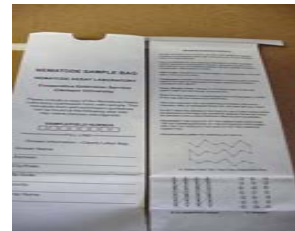
\$30.00 — Outside of SC

Available supplies from the PPC...

Plastic bags for Plant Problem and Plant Identification Samples



Vials for Insect Identification Samples



Nematode Assay Bags

The Clemson University Plant Problem Clinic is a division of Regulatory Services, which is included in the University's Public Service Activities. To learn more about Clemson University's Public Service Activities, please visit

<http://www.clemson.edu/public/>



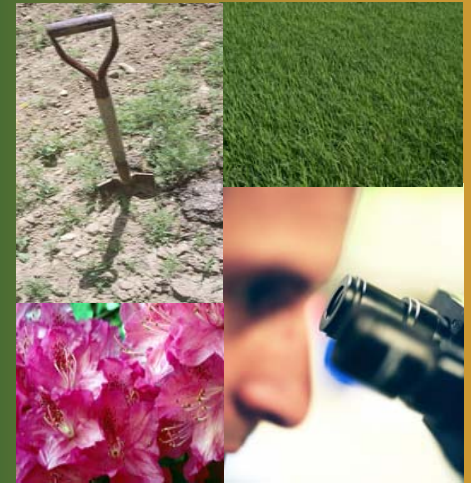
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CLEMSON UNIVERSITY

Plant Problem Clinic Sampling Guidelines



Plant Problem Clinic & Nematode Assay Lab

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The Clemson University Plant Problem Clinic is a multi-disciplinary clinic that provides for the identification of plant problems, insect pests of plants, structures and livestock, weeds and other plants.

The Clinic was designed as an information resource for and to assist county Extension personnel. Our main role with Extension is to provide accurate and timely diagnoses of samples that agents are unable to diagnose themselves. However, the Clinic also provides its services directly to growers and other clients not working with county agents. The Clinic is also an information resource for Clemson University teaching and research personnel.

As a component of Regulatory Services, the Clinic plays a significant role in detecting and documenting new plant pests in South Carolina.

Sample Submission, Diagnosing, and Reporting

Samples are submitted through County Extension offices or directly from the client. The client completes the appropriate submission form and pays a nominal fee. Samples are entered into a web database and are then given to the diagnostician or other specialist.

Plant problem diagnosis involves examination and various tests to detect micro-organisms that cause plant disease. Samples are also checked for insect pests and assessed for damage that may have been caused by non-living agents. Weeds and insect pests are identified based on characteristics of their physical appearance.

Many of the problems people see in their plants are caused by cultural or environmental conditions. It may not always be possible for the PPC to determine the exact cause of the problem. If enough information is provided, a speculation as to possible causes will be given.

PPC reports include a diagnosis or identification, management recommendations, (if needed), and other information. Reports are emailed to clientele who provide an email address. Reports are mailed to clientele who do not have access to the internet, as long as a correct mailing address is provided.

General Sampling Guidelines

- Collect as much recently affected plant tissue as possible, in order to represent all stages and aspects of the problem. Dead material is often useless for diagnosis.
- Submit entire plants if possible. Dig plants, rather than pulling, to keep the roots intact. Wrap the root ball in a plastic bag to prevent drying. Then place the entire sample into a larger plastic bag. Potted plants may be sent in their pots.
- Do not wash samples, as this may remove pathogen structures and encourage growth of secondary organisms. Brush excess soil off leaves.
- Do not include wet paper towels or other sources of moisture. Wet paper towels cause the sample to decay and cause secondary fungi and bacteria to develop. These microorganisms make identification of the true causal agent more difficult.

Plant Problem Diagnostic Samples

Plants exhibiting wilting, yellowing and general decline. Submit the entire plant, if possible. If not, submit several symptomatic branches along with a handful of fine feeder roots from around the affected plant(s) enclosed in some moist soil. Place root sample in a separate plastic bag from the aboveground sample.

Leaf Spots. Collect at least 6 to 12 leaves representing all stages of infection. For plants with small leaves, cut off a branch with leaves intact. For highly succulent leaves, see the fleshy tissue section.

Stem lesions, diebacks, cankers and galls. Select branches with active lesions or young galls. Cut branches or twigs that include a healthy portion and the affected area on the *same branch*.

Fruits, mushrooms or other fleshy tissues. Avoid sending fruit or other fleshy organs showing advanced stages of rot; select early stages of infection or damage. Wipe off excess moisture and wrap fruits or vegetables individually in dry paper and place in a paper bag. Place succulent leaves in between dry paper towels and place in a plastic bag. Mushrooms should be submitted in paper bags. Since these types of samples are highly perishable overnight mail is recommended. Use ample packing material and mail in a crushproof container

Turfgrass samples. Cut out blocks of sod at least 4 x 4 inches, which include the margin between affected and healthy areas. Be aware that nutritional and nematode problems are very common in turfgrasses, and should be considered when deciding on the type of sample submission.

Samples for Identification

Plant/Weed Identification Samples. Plant identification samples should be submitted in plastic bags without adding any additional moisture. For the most accurate identification, submit an entire branch or stem and include flowers or fruits, if present. Mushroom samples should be submitted in a paper bag.

Insect Identification Samples. Tiny insects on plants can be submitted on the plant material in a plastic bag. Other insects should be placed in vials filled with alcohol. Ethanol is preferable to isopropyl (rubbing alcohol), if available. **Human or animal pests will be accepted by the PPC ONLY in vials filled with alcohol. Using alcohol is especially important when human parasites, such as fleas, lice or ticks are submitted, since human blood is considered a biohazard. The PPC will dispose of any sample that contains human tissues, such as skin, scabs, or hair. State and federal regulations forbid the PPC to accept samples that are, or appear to be, of human or animal tissue. If a client suspects that human parasites are present but is unable to locate them, he/she should visit a dermatologist. If any infesting arthropods are found by a dermatologist, they can be submitted by the dermatologist to the PPC.** Send samples in crushproof containers with ample packing material.

Nematode Assay Procedures. Accurate assays require properly collected soil samples. Soil for nematode assays should be neither too wet nor too dry. Collect soil to represent the entire area, place a pint of this soil in the nematode sample bags, and label each sample. Do not allow the soil to dry out, become over-heated, or freeze. Do not place samples in direct sunlight, the trunk of a car, or a freezer.

Threshold values, which are used to determine if controls are needed, are not available for all crops.

Please limit the weight of sample boxes to 20 pounds.

Forms Available from the PPC

The PPC submission forms are designed to provide the necessary information for the Clinic and its cooperators to provide a complete, accurate, and timely diagnosis/ identification with appropriate control recommendations. The submission forms can be found at:
<http://www.clemson.edu/plantclinic>