

How to Collect and Package Plant Disease Specimens for Diagnosis

An accurate diagnosis of specific plant diseases depends on several factors. The specimen must arrive at the laboratory in good (fresh) condition. It must show the symptoms of concern and be appropriate for the type of symptom observed (see below). The following information must be provided with the specimen: a complete description of the symptoms, the history of cultural practices and chemical applications, the age of the plant or the length of time the plant has been in the landscape, when symptoms were first observed, and other facts pertinent to the situation. This information will facilitate the diagnostic process. When a specimen arrives in poor condition (crushed, wilted, or decayed), is not representative or appropriate for the observed disease problem, or is accompanied by insufficient information, accurate diagnosis becomes difficult or impossible. The guidelines below describe the best sample to collect for a particular type of symptom and how to best package that sample.

Leaf Spots

1. Collect leaves showing all stages of infection. Make sure compound leaves are collected with leaflets attached to petioles. Also include twig segments with leaf samples.
2. Place leaves, dried of excess moisture, between dry paper towels or heavy paper. Multiple leaves that are part of the same sample can be arranged in a multi-layer setup (e.g., paper towel, leaf, paper towel, leaf, paper towel, and so on). Place samples in resealable plastic bags.

Galls or Cankers

On twigs or limbs:

1. Collect segments of twigs or limbs that contain the gall or canker.
2. Cut the segment so that several inches of asymptomatic (healthy) tissue extend on either side of the gall or canker.

On leaves:

Collect several whole leaves that contain the galls.

Wilts

1. Send whole plants when possible. Collect several plants, showing all stages of the disease. If it is not possible to send an entire plant, send the root system and the lower 6–8 inches of the stem.
2. Dig the plants; do not pull them up. Include a small amount of soil with the root system. Keep soil and aboveground plant parts separate by placing roots in a plastic bag and sealing with a rubber band. Do not add moisture to the root sample.
3. If nematodes are suspected, collect approximately 1 pint of soil to a depth of 6–8 inches and include plant roots when possible. Place the sample in a resealable quart-size bag. Keep soil samples cool and out of direct sunlight. Do not let samples dry out, but do not add water. Fill out the **Nematode Sample Submission Form** (Form 448), and include it with the labeled sample.

Fruits and Fleshy Organs

1. Do not send specimens of advanced stages of fruit rot. Select plants showing early to intermediate symptoms.
2. Keep specimens cool until shipped. Wrap several sheets of dry paper towel around the fruit. Do not add moisture. Pack specimens so that they are not crushed during shipping.

Turfgrass Samples

Turfgrass samples should be taken from the edge of the affected area and include both dying and healthy plants. Collect several 5-by-5-inch squares of sod (or larger) and include the root system. Place these in resealable plastic bags.

Packaging and Mailing

Please visit the [Extension Plant Diagnostic Lab webpage](#) for shipping details, sample submission forms, and information on current fees, including fees for out-of-state samples. **Note:** Out-of-state samples must be packaged in two sealed plastic bags.

1. When preparing samples for shipping, dry excess moisture from plant tissue and wrap samples, as previously instructed for each plant type, with dry paper towels. Use fresh paper towels if the original paper towels have absorbed too much moisture. The purpose of the paper towels is to absorb any moisture released from the plant tissue, which will reduce sample deterioration during shipping. Enclose samples in resealable plastic bags. Individual samples should be packaged separately and clearly labeled.
2. Fill out the **Plant Disease Sample Submission Form** (Form 1139) as completely as possible. The extra 5 or 10 minutes it might take to fill out the form could save us an hour or more of “barking up the wrong tree” when examining the specimen in the lab.

3. If sending more than one sample, please be sure to properly label samples and accompanying forms.
4. Mail early in the week, and be sure to mark the package “First Class.” This will allow us to get the sample as fast as possible, and it will be less likely to spend the weekend in the post office.
5. Mail samples to:

Shipping Address (FedEx/UPS)

Extension Plant Diagnostic Lab
405 Garrard Road East
Mail Stop 9612
Starkville, MS 39759

Mailing Address (U.S. Postal Service)

Extension Plant Diagnostic Lab
Box 9612
Mississippi State, MS 39759

Additional Resources

- [Nematode Sample Submission Form](#) (Form 448)
- [Plant Disease Sample Submission Form](#) (Form 1139)



Figure 1. Appropriate packaging for shipment and sample submission. Credit: R. McCarthy, Cornell University, Bugwood.org.



Figure 2. Inappropriate packaging for shipment and sample submission. Credit: R. McCarthy, Cornell University, Bugwood.org.

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