

Soil, Plant and Pest Center

Instructions for Collecting and Packing Plant Samples for Diagnostic Lab

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The Soil, Plant and Pest Center's Diagnostic Lab provides diagnosis of plant insect pests and diseases from the field, garden and home.

General Sample Submission

- Complete the submission form with as much information as possible.
- Collect fresh plant samples. Enclose them in plastic bags. Bag roots separately from above-ground portions.
- Do NOT add water to any sample.
- Do NOT wash roots.
- Do NOT send dry or completely dead plant samples.
- Send plant samples immediately after collection. If holdover periods are encountered, keep specimens cold. Plants collected can be kept in a refrigerator or a cooler with ice.

Mailing a Sample

It is recommended that plant specimens be mailed using overnight shipping. Mail packages so they arrive on weekdays (Monday through Thursday) rather than weekends or holidays.

Small Plants (Flowers, Herbs, Vegetables, Groundcovers)

Entire plants in a container or with intact roots should be sent when possible. Samples should be submitted from the transition area of the healthy and unhealthy symptoms (Figure 1).



Figure 1. Plant samples with symptomatic and healthy tissue.

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The larger the sample sent the greater the chance of a successful and timely diagnosis. Send more than one symptomatic plant if possible (Figure 2).



Figure 2. Generous amounts of plant sample.

Unhealthy but still living sections of the plant should be sent, but completely dead material is not useful in diagnosis. Roots should be packaged in separately sealed containers. Enclose the roots in a plastic bag or aluminum foil and tie off at the stem to ship the whole plant (Figure 3). Plants should be carefully dug from the soil to maintain the integrity of the root system for testing. Gently shake excess soil from the roots and wrap the soil and roots in aluminum foil to prevent the above-ground portion of the plant from being contaminated with soil. Place the entire sample in a sealed container for transport (Figure 4).



Figure 3 (left). Packing roots in aluminum foil or plastic bag.

Figure 4 (right). Packing a whole plant sample.

Large Plants (Trees and Shrubs)

When submitting foliage samples, make sure to gather lots of plant tissue. The sample should be a minimum of 12 inches in length with leaves that are actively symptomatic. Samples should be from the transition area between healthy and dead tissue (Figure 5). Dead tissue is useless in diagnosing diseases, but a mix of healthy and diseased tissue will provide ample material for testing. When the plant is too large to ship, split it if possible (Figure 6).



Figure 5 (left and bottom). Foliage with symptomatic and healthy tissue.

Figure 6 (right). Plant split into roots, stems, and leaves.

When the plant is too large to dig up, it is important to dig up a generous handful of feeder roots so the lab can test for root diseases (Figure 7). Stems and leaves should be carefully packaged in a sealed plastic bag and roots in a separate plastic bag (Figure 8). Keep foliage from becoming contaminated with soil. Place the entire sample in a plastic bag for transport.



Figure 7. Generous amounts of small feeder roots.



Figure 8. Plant samples with roots and foliage in a separate plastic bag.

Pictures can play an important role in the diagnosis of woody plants. A wide picture of the entire plant and the landscape around it provides important information for the diagnosis (Figure 9).



Figure 9. Whole plants and a wider view with any nearby structures, road, drainage or other environmental factors.

Special Sample Collection

If cankers, dark streaks in the sapwood (xylem) or the branches, are observed, then collect 4-6 stems (about 8 inches long). Make sure the sample is alive but showing dieback (wilt) symptoms (Figure 10).



Figure 10. Canker and dark streaks in the sapwood.

For cracks caused by internal pressure or cankers on the main trunk, collect a sample about 6-8 inches long from damaged bark down to the surface of the sapwood (Figure 11).



Figure 11. External and internal bark from oak main trunk.

Packing a Sample

Plant samples in a sealed container should be placed in a box with the submission form. The sample should be packaged securely using packing paper or bubble wrap to avoid movement and damage during transportation (Figure 12). Label the plastic bag with your name and sample name (what you want to call the sample).



Figure 12. Sample and submission form packing in a box with paper and/or bubble wrap to prevent shifting and tumbling in transit.



Figure 13. Packing fruit sample.

For fruits, before placing them in a box, wrap in a dry paper towel. Bubble wrap will provide cushioning and absorb excess water to prevent rot (Figure 13).



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