

Collecting and submitting specimens for diagnosis

For many diseases and pests, accurate diagnosis or identification will require microscopic examination of affected tissues for signs of a causal agent. In some cases, the isolation and characterization of a pathogen requires specialized techniques or resources found in diagnostic laboratories.

Plants or pests collected for diagnosis must be as complete and as fresh as possible. It is best to collect several specimens that show the various stages of a problem. Where possible, whole plants should be submitted. To keep root systems intact, plants should be dug rather than pulled from the soil. Soil samples should be submitted along with plants if a soil-borne insect or nematode problem is suspected. To avoid deterioration during shipment, foliage should be free of soil and excessive moisture. It is also important that plants not be mailed in plastic bags as this will hasten spoilage. Intact plants often may be shipped successfully in a cardboard container if a small amount of moist soil is retained around the roots and the root ball is enclosed in plastic wrap or a snugly fitted plastic bag tied off around the stem to prevent soil from escaping.

Hard-shelled insects should be placed in cotton wool or another soft material, placed in a sturdy vial, then securely packed in a cardboard mailing container. Dead insects are very fragile and shatter easily, making identification almost impossible. Mites and insects, especially caterpillars and grubs, should be collected live because they often must be reared through to the adult stage before an accurate identification can be made. Such specimens should be provided with adequate food, usually host material, to minimize mortality during shipment.

As much information as possible should be provided with specimens to aid the specialist in making an accurate diagnosis and in recommending appropriate control measures. This should include such details as host and cultivar names, habitat, cropping practices, type and extent of damage, and recent history of weather conditions and crop rotation.