



Background Information and Sample Quality: Getting the Best Possible Diagnosis!

If you are a vegetable grower, involved in a nursery or plug production, own an orchard or if you find yourself responsible for landscape installations and maintenance, chances are that sooner or later you will run into a disease problem. When a disease outbreak occurs you may wish to seek the expertise of The Soil & Plant Laboratory, which offers plant disease diagnosis. Accurate identification of the problem is paramount for developing the right management strategies to prevent further loss of plant material. The accuracy of a given diagnosis is highly dependent upon the quality of the sample submitted and the amount of background information given, i.e. poor samples equal poor diagnosis. The following are a few tips on submitting samples for pathology work that will help you obtain the best possible diagnostic service for your money.

- ✓ Collect fresh material and try to submit several specimens that display different stages of observed symptoms. Keep in mind that the pathogen is not always in symptomatic tissue. For example, symptoms observed in the foliage such as chlorosis, marginal necrosis, leaf drop and wilt may be associated with a vascular wilt or root rot. Therefore include as much of the plant as possible.
- ✓ Plants in advanced stages of disease development (dead) are poor samples since many secondary organisms will have moved in making isolation and identification of the pathogen difficult.
- ✓ Place samples in a polyethylene bag and label the bag accurately. Place a dry paper towel in the bag to act as a blotter to prevent plant material from decomposing during transit. When submitting roots, handles these with care. Avoid leaving feeder or rotted roots behind. Include a liter of soil to prevent roots from drying out. This soil can also be used for pH, salinity, fertility and nematode testing if needed.
- ✓ If submitting an entire plant, place the root ball/pot in a polyethylene bag and wrap a twist-tie around the stem at ground level to keep soil off of the foliage.
- ✓ Include information on growing practices, e.g. fertilizer, growth regulator, herbicide and pesticide applications. Information regarding recent environmental conditions, e.g. humidity, temperature, wind, etc. is also very helpful. As obvious as it may seem, do not forget to include your name, phone number and fax number. Cover letters or using the attached questionnaire stating the problem, host plant name and what you are looking for as far as recommendations will insure that you get the information you desire.
- ✓ It is very important that samples be kept cool and moist. If samples are taken early and will not be shipped to the lab for several hours, place them either in the refrigerator, or in a cooler on ice. The sooner the samples arrive at the lab the better the chance the diagnostician will have to isolate the pathogen(s). Next day delivery is mandatory.

You should realize that some plant problems will unfortunately defy complete diagnosis and it may be necessary to submit additional samples. Although the diagnostician should come closer to a definitive answer with each subsequent sample submitted, there will be times when certain plant problems will go unsolved. Diseases involving more than one casual agent often fall into this category. Finally, if you have any doubts as to what to send or any questions regarding sampling, do not hesitate to give the laboratory a call. The Plant Pathology department will be more than happy to walk you through the process to insure a proper sample is submitted.





PATHOLOGY PRE-DIAGNOSIS QUESTIONNAIRE

1. Company _____ Contact _____
Address, City, State & Zip _____

Phone # () _____ Fax # () _____
Email _____
2. Plant/Crop affected _____
3. Type of Planting: commercial, greenhouse, nursery, residential, field, other _____
4. Planting site (*landscape only*): street side, ground bed, terrace, patio, indoor, lawn
5. Distribution of disease: scattered, localized, uniform, on slopes, high spots, low spots
6. Percentage of plants affected _____ %
7. Part of plant affected: roots, stem/trunk, branch/twigs, leaves, bulb/corm, seed, flower, fruit,
 entire plant, other _____
8. General symptoms: malformation, canker, dieback, galls, spots, marginal burn, gumming,
 stunting, wilting, mosaic/mottling, yellowing, shot hole, defoliation, tip burn,
other _____
9. When and where were symptoms first observed? _____
10. Disease situation: progressive, relatively stable, other _____
11. Effect on plant: slight, moderate, severe, other _____
12. Soil type: heavy clay, clay-loam, loam, sandy, rocky, container media
13. Drainage: good, medium, poor
14. Weather (past 2 wks.): rain, amount _____ inches
relative humidity _____ cloudy, partly cloudy, sunny, hot, temp. _____ cold, temp. _____
wind: low, moderate, high
15. Chemicals applied: (rates, dates & methods of application)
Fertilizers _____
Fungicides _____
Herbicides _____
Insecticides _____
16. Evidence of insect activity: yes, no
17. General disturbances: gas leak, construction nearby, soil added or removed from around plants
 excavation nearby, _____ ft. away.
other _____

SEND SAMPLES TO: Soil & Plant Laboratory, Attn: Pathology Department, 1594 N. Main St. Orange, CA 92867

