

## Importance of Proper Diagnosis

Proper diagnosis is essential for managing insect pest or plant disease problems. Plant pests and pathogens have complex life cycles and when plants become stressed, secondary agents often take advantage of their weakened condition. Because of these factors, an experienced diagnostician and a quality sample is needed to accurately identify the cause of a plant problem.

**The Plant Disease Diagnostic Clinic** analyzes plants for problems caused by pathogens such as bacteria, fungi, viruses, phytoplasmas and nematodes and addresses problems caused by abiotic issues such as over watering, chemical damage and weather events. The clinic also provides plant and mushroom identification services.

**The Insect Diagnostic Laboratory** identifies insects and insect damage from samples collected on plants, animals, in stored foods and even buildings.

Both laboratories strive to identify the cause of the problems as quickly as possible. Responses from the diagnosticians will include an explanation of the findings, a description of the pathogen or pest and, if available, management suggestions.

The condition of your sample greatly affects the diagnostician's ability to provide a timely and accurate response. Follow the guidelines in this brochure and ask questions if something is unclear. Provide the best quality sample you can obtain, pack it with care, ship it quickly and provide a couple of contact numbers and an email address.

## Contact & Shipping Information

### PLANT DISEASE DIAGNOSTIC CLINIC

Cornell University  
Department of Plant Pathology &  
Plant-Microbe Biology  
329 Plant Science Building  
Ithaca, NY 14853-4203  
Phone: (607) 255-7850 • Fax: (607)255-4471  
Email: [kls13@cornell.edu](mailto:kls13@cornell.edu) or [slj2@cornell.edu](mailto:slj2@cornell.edu)  
<http://PlantClinic.cornell.edu>

### INSECT DIAGNOSTIC LAB

Cornell University  
Department of Entomology  
2144 Comstock Hall  
Ithaca, NY 14853-2601  
Email: [IDLDiagnosticLab@cornell.edu](mailto:IDLDiagnosticLab@cornell.edu)  
<http://entomology.cornell.edu/IDL>



### CORNELL NUTRIENT ANALYSIS LABORATORY

Cornell University  
Department of Crop and Soil Sciences  
804 Bradford Hall. Ithaca, NY 14853-1901  
(607) 255-4540 • Fax: (607) 255-7656  
Email: [soiltest@cornell.edu](mailto:soiltest@cornell.edu)  
<http://cnal.cals.cornell.edu/>

### CORNELL COOPERATIVE EXTENSION

To find your local office visit the website at  
[www.cce.cornell.edu](http://www.cce.cornell.edu)

### NYS IPM PROGRAM

[www.nysipm.cornell.edu](http://www.nysipm.cornell.edu)



Cornell University

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## The ABCDs of submitting samples for accurate and timely results

### Ask questions prior to submitting a sample

- Review this brochure, refer to our websites or call ahead to determine what type of material should be included in the sample
- Check with staff to determine if holidays may interfere with the receipt of samples

### Be observant

- Look around the area of concern
- Note characteristics of the damage
- Stand back and consider the big picture, then note the damage to the entire site, on individual plants and on individual plant parts

### Collect a quality, representative sample

- Gather material with a broad range of symptoms including early to late stages of symptom expression
- Collect material prior to any pesticide applications

### Details should be provided with the sample material

- Fill out the submission form carefully and completely
- Describe the situation with details about when it first occurred, the plant(s) affected and level of damage
- Include the location and date of collection
- Always include all your contact information so the diagnostician can contact you with questions and provide you with answers efficiently

### Shipping of material for analysis

- Send material using the fastest means possible
- Ship early in the week to avoid your sample spending the weekend in a post office or warehouse
- If you can't send material immediately, keep it refrigerated until you can

## How to submit plant and insect samples for diagnosis



## Plant Disease Sample Guidelines

When submitting plant material for analysis, include all parts of the plant that are symptomatic. When possible, include the entire plant or if seedlings, numerous individuals. If collecting specimens from an outdoor environment dig the plants up with care, intact root systems may contain vital information.

Select specimens that display a range of symptoms. Try to include plants that show early examples of the problem and those with increasing levels of damage. Do not include what appears to be dead material; this material may no longer include the primary source of the problem.

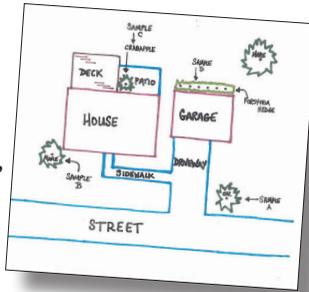


On the submission form, describe the problem in detail. Provide the host plant scientific and common names and include cultivars, if known. Describe the pattern of damage of the entire area and how an individual plant or plant part is affected. Are all plants affected or just one? Are the leaves all brown or just the margin or just spotted areas? Include cultural information such as watering, fertilizing, mowing conditions, recent rainfall amounts, etc.

Do your best to provide a complete picture of the situation. Include photographs or send digital images with your submission. The images should show patterns of damage and the surroundings of the site.

## Tips for Collecting Samples

- Select plant material that shows various stages of damage
- Look for areas that display the margin between dead and healthy tissue
- When possible, include the entire plant or all parts of the plant that are symptomatic
- If submitting seedlings, fruits or vegetables, send multiple examples
- If sending numerous samples for which individual answers are needed, package each sample separately and assign a unique identifier. Consider using short descriptions such as “driveway garden” or “42<sup>nd</sup> street tree”
- If multiple samples are taken from one garden, yard or field, include a map and assign letters or numbers for sample location



Please see the back cover for contact & shipping information

## Tips for Packaging Samples

- Do NOT water plants or moisten packaging material
- Use a sturdy box and tape all openings
- If numerous samples, keep separate, place each in a plastic bag and label with unique identifier
- Wrap potted plants with plastic or paper to minimize soil movement onto leaves during shipment
- Shake soil off bare root plants and wrap the roots with plastic
- Loosely pack branches, stems and leaves in a plastic bag

Refer to our websites for more collecting and packaging tips.

## The good, the bad and those who fall somewhere between...

**Did you know** that insects and microorganisms are found nearly everywhere in the world? The majority that you will find in and around your home and garden are harmless and even beneficial. Insects serve as pollinators for 1/3 of our food supply, produce beeswax and food such as honey, improve soil condition through their movements, are parasites or predators of harmful insects, and are studied by students to gain a better understanding of everything from genetics to conservation. Microorganisms produce oxygen, break down dead organic matter, ferment beer and wine, clean up oil spills, produce pharmaceuticals such as Penicillin and live in our intestines as microflora.

A small group of insects and microorganisms are harmful pests and pathogens that cause damage to plants or our homes. It takes a well-trained diagnostician to distinguish the good from the bad.

Be sure to use a qualified diagnostician that will provide you with an accurate diagnosis and offer the best option for managing your situation. Remember...identification and early detection are critical!

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## Insect Sample Guidelines

If you're submitting a plant pest, please include or identify the plant material on which the insects were found. This is useful and sometimes absolutely necessary for insect identification. If you don't see any insects but suspect the problem is caused by them, collect several samples of damaged plants showing a progression of symptoms. If the plants are small, consider submitting an entire plant. (Refer to the tips for packaging samples section for details.)

It is illegal to send some live insects through the mail. Please submit preserved specimens.

## Preserving & packaging insects

### LARGE OR HARD-BODIED INSECTS

To kill hard-bodied insects such as, beetles, wasps, butterflies and moths, or cockroaches put them in a freezer for a day. Gently sandwich the dead insects between layers of tissue, then place them in a sturdy container.

### SMALL OR SOFT-BODIED INSECTS

Grubs and caterpillars must be prepared before preservation to prevent discoloration. Drop them into gently boiling water for about 30 seconds, then transfer them into a vial containing 70–80%

alcohol or 100 proof liquor. Please indicate the original color of the specimen.

Aphids, spiders and other small arthropods may be placed directly in a vial containing alcohol.

