

Successful plant disease diagnosis is a team effort. Proper diagnosis begins with the submission of a good-quality specimen accompanied by accurate and complete information. It is difficult, if not impossible, to determine the cause of death from a single leaf, dried or old specimen, or (especially) a dead plant. Healthy plants from the same area are also helpful to a diagnostician. It is also important to include the margin of the disease (where healthy and diseased tissue come together) in the sample, especially with stem and branch disorders.

Guidelines for submitting specimens to the plant diagnostic clinic for diagnosis

Please read and follow these instructions before submitting specimens.

Collecting

- 1) Provide as much information regarding the specimen as possible. Fill out a "Plant Specimen Submission" form.
 - a) Identify the plant material (variety) and acreage (when applicable), and indicate the percentage of plants affected.
 - b) Indicate when the symptoms first started and whether or not the symptoms are continuing to develop or spread.
 - c) List all cultural practices such as irrigation frequency, rate and time of chemical application (herbicides, insecticides, fungicides, etc.), fertilizer regime, and crop rotation over the previous three years when applicable.
- d) Try to give an estimate of the weather conditions preceding and during symptom development.
- e) For home or urban plantings, indicate the type of environment in which the plant is growing (e.g., lawn, flowerbed, pot, house, greenhouse).
- f) Good-quality, in-focus photographs or digital images of the plant in its environment can be extremely helpful to the diagnostician. Digital images can be sent via e-mail to:
 - ngoldber@nmsu.edu
 - jfrench@nmsu.edu
 If the images correspond with a submitted sample, please be sure to note that in the email message.
- 2) Select material showing the symptoms. If possible, it is best to send several samples showing various stages of the problem. Early stages of symptom development are especially important.
- 3) Send samples of all plant parts, including roots whenever possible. Aboveground symptoms may be caused by root or stem diseases; thus, examining all parts can be essential for an accurate diagnosis. Dig plants (do not pull them) out of the soil. Pulling plants out of the soil will generally break off the roots, especially if they are rotten. Retain a small amount of soil around the roots. *Do not wash roots.* Keep the roots and soil separate from the aboveground parts of the plant by placing them in a plastic bag and sealing them off with a rubber band.

¹ Extension Plant Pathologist and Plant Diagnostic Clinician, Department of Extension Plant Sciences, New Mexico State University, Las Cruces.

- 4) When the entire plant cannot be sent, send several affected portions of the plant. Remember to include the margin of disease on stem and branch samples.
- 5) If you suspect vascular wilt diseases, such as Verticillium wilt, send a sample from dying or wilted branches with yellow leaves. Remember: *Do not send dead wood*. Place several branch sections 1/4 to 1 inch in diameter and approximately 6 inches in length in a plastic bag. This will prevent the sample from drying in transit.
- 6) Turfgrass samples should be taken from the edge of the affected area and should include both dying and healthy plants. Again, *do not send dead grass*. Send several 3 inch x 3 inch squares of sod, which should include at least 2 inches of soil. Wrap the sample in a thin layer of damp (not wet) paper toweling, then wrap in dry newspaper.
- 7) Fleshy specimens such as fruit, mushrooms, or other fungal fruiting bodies should be as firm as possible and show both early and intermediate symptoms. Wrap specimens separately in dry paper toweling or dry newspaper. *Do not put in plastic*. Pack specimens so they are not crushed during shipping.

Packing

- 1) Keep plants cool and moist prior to shipping. Use an ice chest when collecting samples and then place them in the refrigerator until they can be sent.
- 2) Pack in a sturdy container to prevent crushing during transit. Use newspaper to pack specimen firmly in the container. Be sure to include a completed submission form with contact information, including e-mail address if available.
- 3) Mail specimens as soon as possible after collection (*overnight delivery is recommended*). Mail early in the week to avoid delivery delays over weekends, and be aware of holidays that also might delay delivery.

Address packages to:

Plant Diagnostic Clinic
 Extension Plant Sciences, MSC 3AE
 New Mexico State University
 P.O. Box 30003
 Las Cruces, NM 88003–8003

For Overnight, UPS or Fed Ex:

New Mexico State University
 Plant Diagnostic Clinic
 945 College Avenue
 Skeen Hall Room N140
 Las Cruces, NM 88003–8003

The diagnosis you receive is only as good as the sample you send. In some cases, diagnoses may require the use of tests or equipment that are not available at our facility. In those cases, commercial laboratories may be recommended. While time devoted to individual samples is limited, diagnostic reports will reflect considered opinion and best judgment based on all the information available. Complete information regarding the sample that is submitted will help the diagnostician provide an accurate diagnosis. For some problems, such as insect damage, other professionals may be consulted. Specimens may be forwarded to scientists more qualified to analyze the material. Remember, proper diagnosis begins with you. Submitting good-quality specimens accompanied by complete and accurate information is the first step in identifying and solving the problem. Your satisfaction may depend on it!

PLANT SPECIMEN SUBMISSION FORM

*******Diagnostic Lab Use Only—Do Not Write In Box*******
Sample No. _____ Date Sample Received: _____

PLEASE REMEMBER...Successful plant disease diagnosis is a *team* effort. Proper diagnosis begins with the submission of a good-quality specimen accompanied by accurate and complete information. Please follow these guidelines and submit the best sample possible (if the sample is insufficient for diagnosis, you will be asked to submit a new sample).

If you have any questions, please call before submitting your sample (575-646-1965).

COLLECTION:

1. **DO NOT** send dry or dead material.
2. Collect several samples showing various stages of symptom expression. When the whole plant can't be collected, select sample from the margin of the diseased area. Include a healthy plant if possible.
3. Send a representative sample from **all parts** of the plant. Dig plants out of the soil (**DO NOT PULL**). **DO NOT** wash roots. Gently shake excess soil from roots.
4. For turfgrass, select a 2- to 4-inch sample (including at least 2 inches of soil) from the margin of the diseased area.
5. Wrap sample in dry paper towel or newspaper and place in a paper or plastic bag. Do not use plastic if there is a lot of moisture associated with the sample. Never add moisture to any sample.
6. Submit a **completed** Plant Specimen Submission Form. Processing of the sample may be delayed for specimens received without the proper form or if information provided is insufficient.

PACKING:

1. Keep sample cool prior to shipment.
2. Pack the sample carefully in a sturdy box or padded envelope. Be sure not to crush specimens.
3. Mail immediately (*overnight delivery is recommended*). Avoid mailing over weekends and holidays.

ADDRESS PACKAGE TO:

Plant Diagnostic Clinic
Extension Plant Sciences, MSC 3AE
New Mexico State University
Box 30003
Las Cruces, NM 88003

For Overnight, UPS or Fed Ex:

New Mexico State University
Attn: Plant Diagnostic Clinic
945 College Avenue
Skeen Hall Room N140
Las Cruces, NM 88003

PLEASE FILL OUT THE FOLLOWING:

Grower/Homeowner

Name, Address and Phone Number

Submitted by: (If different from grower)

E-Mail Address: _____

Level of Diagnostic Services Requested (If no box is checked, diagnosis will be completed as needed):

- Basic evaluation (\$20.00 non-commercial, \$30.00 commercial, \$40.00 commercial turfgrass)
- Extension or University submitted—no fee.
- 50% surcharge for out-of-state samples

Prices subject to change

Special request or instructions:

VARIETY (genus and species, and/or common name of plant) _____

AGE OF THE PLANT: _____ PLANTING DATE: _____

SYMPTOMS (circle all that apply):

Plant parts affected: roots, crowns, stems, branches, leaves, fruit, whole plant.

Symptoms: spots, tipburn, distortion, mosaic or mottle, chlorosis (yellowing), rot, necrosis, mildew, blisters, defoliation, wilt, dieback, blight, stunting, canker, galls

Description (be as specific as possible; describe the whole plant—remember, the clinician is only seeing the specimen submitted). _____

When did symptoms first appear? _____

Are the symptoms (circle one): spreading or localized?

Symptom development (circle one): gradual or sudden?

Distribution of diseased plants (circle): scattered, clustered, in a row or pattern?

Number or percent of plant(s) infected _____

SOIL TYPE (circle all that apply): Sand, Silt, Clay, Well drained, Poorly drained, Heavy, Light.

GROWING CONDITIONS (circle all that apply): Indoors (home/office), Greenhouse, Home Garden, Lawn, Landscape, Organic Garden, Commercial Field. Other _____

WEATHER CONDITIONS (immediately prior to and during development of symptoms):

(Circle all that apply) Wet, Dry, Humid, Windy, Dusty, Hail

Temperature (°F) _____ Other Conditions _____

IRRIGATION HISTORY: (circle all that apply): Furrow, Flood, Drip, Sprinkler, Hand

How often? _____ How much water is applied? _____

FERTILIZATION HISTORY: (type, nutrient ratio, amount applied, and frequency of application)

CHEMICALS APPLIED (Chemical name, method and frequency of application and amount applied)

CROPPING HISTORY (for agricultural fields or home gardens)

Rotation (previous 3 years) _____

Past Problems (in field) _____

OTHER INFORMATION:

*****Diagnostic Lab Use Only—Do Not Write In Box*****		
Sample Condition:	Information Received:	
<input type="checkbox"/> Excellent / 1	<input type="checkbox"/> Complete / 1	<input type="checkbox"/> Photo or digital image
<input type="checkbox"/> Good / 2	<input type="checkbox"/> Partial, some useful information / 2	Quality? _____
<input type="checkbox"/> Fair / 3	<input type="checkbox"/> Incomplete / 3	
<input type="checkbox"/> Insufficient / 4	<input type="checkbox"/> None / 4	Total: _____
Diagnosis: Complete / Not Complete	Explanation: _____	

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