

Sampling Guidelines for Sudden Oak Death / Ramorum Blight Caused by *Phytophthora ramorum*

Frequently Asked Questions

How do I know if I should submit a sample?

Phytophthora ramorum, the cause of Sudden Oak Death / Ramorum Blight, has been introduced recently into Maryland on infected nursery stock. On infected nursery stock, the disease is known as Ramorum Blight. On oak, the disease is known as Sudden Oak Death. Two names, one very important plant pathogen. We believe the pathogen was introduced after March 2003, and may continue this year. If you purchased host plants after March of 2003, we recommend that you examine the plants. If you observe any unusual symptoms, you should submit a sample. Plants purchased or planted prior to March 2003 do not require testing.

I'm not sure if my plant is a host or not. Where can I find out?

Some of the ornamental hosts of this pathogen include:

| | | |
|-----------------------------|-----------------------------|-----------------------------------|
| <i>Rhododendron</i> | Azalea | Honeysuckle |
| <i>Viburnum</i> | Lilac (<i>Syringa</i>) | Mountain Laurel (<i>Kalmia</i>) |
| <i>Camellia</i> | Andromeda (<i>Pieris</i>) | <i>Leucothoe</i> |
| <i>Formosa (Pyracantha)</i> | Witch hazel | Huckleberry |

Additional hosts are listed on the color fact sheet included with the sampling kit. The complete and most up-to-date host list can be viewed on the USDA website at www.aphis.usda.gov/ppq/ispm/pramorom/.

What symptoms am I looking for?

The symptoms caused by *Phytophthora ramorum* can be quite variable (photographs below). The most common symptoms include brown to purple leaf spots with a fuzzy border. These spots usually begin near the leaf tip. Other symptoms include wilting or downward curling of leaves even though the plants have been well watered. The plant may drop leaves and exhibit dieback on the branches. Since these symptoms are variable, we encourage you to review the website of the California Oak Mortality Taskforce at www.suddenoakdeath.org.

On some hosts, obvious symptoms of discoloration or dieback may not be present. You may observe leaf drop or decline of the plant although adequate fertilizer and moisture are available. If your camellia, viburnum, or lilac plants exhibit this type of decline, a sample should be submitted for testing.

A.



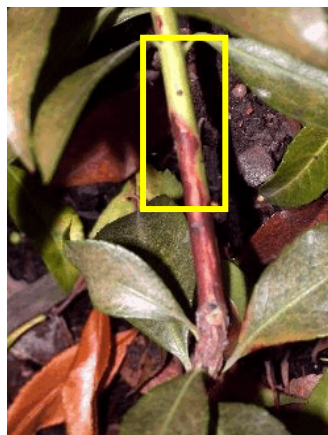
B.



C.



D.



Which leaves or stems should be sampled?

Look for areas on the leaves or stems that exhibit a border between healthy and diseased tissue. A good example of this is shown in photograph D above. **Do not** submit dead leaves or branches as these cannot be tested. Please collect whole leaves or six inch stem sections. To prevent spreading any plant disease, we recommend dipping cutting tools in a 10% bleach solution between cuts (10% bleach solution is prepared by mixing 1 part household bleach to 9 parts water).

How many samples should I submit?

One bag of leaves or stems will comprise a sample. One sample should contain only leaves from plants that are in the same host genus.

What do you mean by genus?

A genus is a group of closely related organisms. For example, lions, tigers, leopards, and domestic cats are all in the same genus. With regard to plants, hybrid tea roses, miniature roses, carpet roses and multiflora rose are all in the same genus.

So, when you prepare your samples, *Viburnum* leaves should comprise one sample and *Camellia* leaves will comprise a second sample since they are not in the same genus. However, azaleas and *Rhododendrons* are closely related and are in the same genus. Leaves or stems from these plants should be combined to make up one sample.

How many plants should be sampled together?

Up to fifty plants of the same genus should be examined and combined to make one sample. Select leaves or stems with the best symptoms.

How many leaves or stems should I submit?

Please submit either 10 or 20 leaves or stems in your samples. **Do not** send in more than 20 leaves or stems.

Can you give me some examples?

Example 1. A home gardener planted three camellias in March 2004. This gardener would examine all three plants for unusual symptoms (leaf spots, dieback, etc). From the three camellias, she collects seven leaves with purplish-brown spots and randomly selects three additional leaves for a ten leaf sample.

Example 2. A home gardener planted thirty rhododendrons in May 2003. Many of the leaves are wilted and there are reddish-brown sunken cankers on the stems. The gardener uses pruners to remove twenty symptomatic stem sections for a twenty stem sample. These stem sections are randomly selected from throughout the large planting. The smart gardener disinfects her pruners by dipping them in a solution of 10% bleach solution between each rhododendron plant.

Example 3. A home gardener has five lilac plants which did not bloom well this spring. The gardener has planted no new plants in the past two years. The gardener has no reason to believe the symptoms are due to Ramorum Blight and therefore does not submit a sample. The gardener may wish to call the MD Home and Garden Information Center at 1-800-342-2507 to learn about other pests and disease possibilities.

How do I package my leaves or stems for testing?

Included in your sample kit are all the supplies needed to submit one sample. If you would like to test more than one sample you will need to obtain additional Ziploc bags and sample forms. **All samples must be placed in DOUBLE ZIPLOC bags.** Additional copies of the sample submission form can be printed from the MD HGIC website at www.hgic.umd.edu.

1. Place either ten or twenty leaves or stems inside one of the enclosed Ziploc bags. If the leaves are damp or wet, please wrap them in the paper towel provided. **Do not** submit more than twenty leaves or stems.
2. Place the first Ziploc bag inside the second Ziploc bag provided. **ALL SAMPLES MUST BE PLACED IN DOUBLE ZIPLOC BAGS!** We will not open samples that are not properly packaged. Failure to double bag samples may allow the disease to spread during mailing!
3. Complete the sample submission form. Samples that arrive without forms cannot be tested.
4. Place the sample form and double Ziploc bagged sample into the postage paid envelope. Store the envelope in the refrigerator until you are ready to mail it. Please time your mailing so that it does not sit in the post office over the weekend. Our normal business hours are Monday through Friday, 8:00am-4:00pm.
5. Plant samples will be tested as quickly as possible. We will respond most quickly to submitters that include an email address on the submission form. Others will be notified by mail. If we require additional information, we may contact you by phone or in writing.
6. If you have any questions about the sampling procedures, please call the MD HGIC at 1-800-342-2507 or 410-531-1757.

It looks like my oak tree has a bleeding canker. Should I submit a sample?

Many pests and diseases cause bleeding similar to that caused by Sudden Oak Death. Unless you planted woody plants that exhibit or exhibited unusual symptoms in 2003 or afterward, there is probably nothing to worry about. You should examine the bleeding site for damage such as boring holes caused by insects. If the area of seepage smells foul, it is probably caused by a bacterial infection. However, if the bleeding site smells fruity or like wine, you may wish to take a sample. To date, bleeding cankers caused by *Phytophthora ramorum* have only been observed on oak, beech, and chestnut.

To sample a bleeding canker, you will need a special sample kit and some tools. A small vial and two small Ziploc bags are included in our Bleeding Canker Sample Kit. This kit can be requested by phone or email from the HGIC. Please inform the consultants that you intend to sample a bleeding canker so that the correct kit is mailed.

Examine the bleeding site and if any liquid ooze is present, please manipulate the ooze into the supplied vial. Place the vial inside the two small Ziploc bags included in your kit. The vial should be placed inside double Ziploc bags to contain the sample in case the vial leaks or breaks during shipping.

If the seepage has soaked into the bark, and you are unable to sample the ooze, you will need to obtain a tool such as an axe. Carefully use a tool to remove the outer layer of bark near the bleeding. The area under the bark is called the sapwood. Examine the sapwood for the zone line that separates healthy (yellow-green-red) and diseased (brown-black) tissue. Carefully remove a piece of wood from this area at least 1 inch wide by 1 inch tall by ½ inch deep. Immediately wrap the sample in plastic wrap to prevent it from drying out. Place the sample in the Ziploc bags provided in the sampling kit.

Do you ever reject samples?

Most samples will be tested for *Phytophthora ramorum*, but we do reserve the right to reject samples. Reasons for rejection include but are not limited to, out of state samples, incomplete submission form, non-host sample, sample not double Ziploc bagged, and sample too degraded or too old. If your sample is rejected, we will attempt to contact you about the rejection. Please note that it is absolutely essential that your sample arrive in two Ziploc bags to prevent unintentional spread of a disease or pest.

What is the likelihood that my plant has Sudden Oak Death /Ramorum Blight?

It is very unlikely that your plant is infected with the pathogen that causes Sudden Oak Death / Ramorum Blight. The only plants that may be at risk are those hosts that were planted after March 2003. This pathogen is believed to have been introduced in Maryland on nursery stock sometime during this time period. To date (5/1/05), no samples from home gardeners in Maryland have been diagnosed with Sudden Oak Death / Ramorum Blight.

What if my plant tests positive for Sudden Oak Death?

If your plant tests positive for the Sudden Oak Death / Ramorum Blight pathogen, MDA will help dispose of the infected plant, and work with you to determine if any other plants may be infected.

If my plant looks sick, what else could be wrong with it?

Many plants are affected by pests or diseases. The symptoms observed on your plant may be damaging, but may not be uncommon. The drought in 2002 and wet weather in 2003 and 2004 left many plants vulnerable to infection by plant disease causing organisms. In many cases, these symptoms may not become visible until spring.

The MDA Plant Pathology laboratory will only diagnose home gardener samples as positive or negative for *Phytophthora ramorum*. We will not examine or test the sample for other pests or diseases. If you have pest or disease related questions, please contact the University of Maryland Home and Garden Information Center at 1-800-342-2507 or via their website at www.hgic.umd.edu.