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SUBMITTING PLANTS FOR DISEASE IDENTIFICATION

By M. D. MARCLEY, Plant Pathologist

THERE are several important points to remember when submitting plant material for disease identification by the Department of Agriculture's Plant Pathology Branch.

Firstly it is very important to collect a suitable sample because it is very difficult to determine the cause of a plant disease by looking at a completely dead plant. The sample should include the entire plant (before it is completely dead) including roots and soil. Then all the effects of the disease can be seen. For example leaf yellowing, dead areas of the stem, collar rot, root rot, eelworm damage, and disease of the water and food conducting systems of the plant.

If the disease problem is in a lawn, a suitable sample would be a section of the lawn showing the symptoms of the disease.

If the diseased plant is a large shrub or tree, separate leaf and root samples must be collected. The leaf sample should include a few small branches with healthy and diseased leaves attached. The root sample should include about 1 lb. of feeder roots with about 1 lb. of soil from the root zone. This will keep the roots from drying out and will aid in the diagnosis of any root disease that may be present. If the disease problem is in a crop several plants should be collected so that a range of symptoms can be seen.

Some plant diseases affect only the above ground parts of the plant. Therefore it
A well-presented series of plant specimens showing a range of symptoms. Soil and roots have been enclosed in a plastic bag. The specimen information sheet supplies details of disease development.

will only be necessary to take as samples those leaves, shoots or fruit showing spotting or malformation. Healthy parts should be included for comparison.

**Fresh material**

*Collect fresh material.* It is impossible to diagnose a disease from dead and dried up plants or from damp mouldy plants or rotten fruit and vegetables. Therefore, leaf samples should include a few small branches with healthy and diseased leaves as previously mentioned and root samples should include healthy and diseased roots with soil from the root zone. It is very important to collect fresh fruit and vegetable samples for disease identification as these types of material decay rapidly after they have been picked or dug up.

**Wrapping**

*Wrap the sample properly.* If an entire plant is to be submitted, put the roots and soil in a plastic bag and close the bag around the bottom of the stem. The sample can then be put into a cardboard box for delivery.

If separate leaf and root samples are to be submitted as from a large shrub or tree, the roots and soil should be put into a plastic bag which should be closed with string, thin wire, or an elastic band. The small branches with healthy and diseased leaves attached should not be wrapped in anything. They may be placed in a box with the soil and root sample.

Lawn samples can be wrapped loosely in newspaper and then put in a box. Large leaf samples as from cauliflower and cabbage can also be wrapped loosely in newspaper and put in a box for delivery.

**Identity**

*Remember to identify the sample.* All plant samples for disease identification should be addressed to the Department of Agriculture, Jarrah Road, South Perth 6151 and labelled “Plant disease specimen” Every sample should include a note with the name and address of the owner, the name, age, and variety of the plant, and a brief description of what is wrong with the plant.

Other information required with each sample is a description of the soil type—sandy, clay or gravel; the drainage—for example, well drained growing in a deep sand or on the side of a slope or poorly drained growing at the bottom of a slope. The type and amount of fertiliser and sprays used on the plant should also be mentioned. This information should be in
Name and Address: Mrs. A. M. Yelland, 21 Wharf St., Busselton 6280.

Name, age and variety of plant: Two-year-old Apple Blossom Hibiscus.

Brief description of symptoms: Leaves turned yellow and plant recently began to die.

Soil type and drainage: Sandy soil in a flat area with good drainage.

Fertilizer and sprays used: Fertilized with animal manure, no sprays used, grass cuttings put around base of stem as compost.

the form of a note included with the sample in the package.

There are approximately 20 sections of the Department of Agriculture and many thousands of samples are received by the Department every year. The Plant Pathology Branch receives about 300 of these samples. Thus if an unidentified or improperly labelled sample arrives at the Department, it can easily be sent to the wrong section. By the time these samples arrive at the correct section they are usually dried up or mouldy and of no use for identification. Remember to address the sample properly and write "Plant disease specimen" on the outside.

Dispatch
One of the most important points to remember is to submit the sample promptly. Plant disease samples should be submitted immediately after they are collected.

The reason for this is that the disease organisms in the plant can be obscured very rapidly by secondary moulds once the plant has been dug up or cut up for submission as a sample.

If a plant disease specimen is allowed to sit around for days after it is collected, secondary organisms will spread through the specimen and cause it to rot or become mouldy. The sample is then no good for disease identification.

Timing
Tests necessary to identify a plant disease usually take several days, and are started on Monday, Tuesday or Wednesday so they will finish before the weekend. If a sample arrives on Thursday or Friday, the tests necessary to identify the disease cannot be started until the following Monday. By this time the plant samples will be too mouldy for use. Therefore plant samples should not reach the Department of Agriculture after Wednesday.