Guide to identify common cherry rot pathogens

NSW GOVERNMENT Department of Primary Industries

tia TASMANIAN INSTITUTE OF AGRICULTURE

Horticulture Innovation Australia

Getting started

The fungal pathogens that cause cherry fruit to rot are not easy to identify, but with some practice you can get familiar with the main species. There is a **glossary** with terms at the end of this guide. You can tell which fungus is which is by looking at the colour, texture and spores of the fungus.

To examine the spores you have two options:

For rotten fruit with VISIBLE fungal threads and spores, you can look directly at the sample fresh.

For rotten fruit with no visible evidence of fungi yet, put it in a plastic bag (room temperature) for a day or two, then look at the spores that grow.

Once you have a fruit sample with mycelium and spores, you can first examine it with either:

- a hand lens (Figure 1-1)
- bench top low power microscope (Figure 1-2)
- microscope fitted to a camera (e.g. iphone) (Figure 1-3)

If you wish to examine the structures more closely you need to use a high powered microscope (Figure 1.4). Fungal material needs to be removed from the surface of the fruit and placed on a glass slide, before staining (preferably lactoglycerol blue).

If you are new to identification of rot pathogens, it is essential to have your identification confirmed by sending some representative samples to your local diagnostic service provider (see Appendix).

(1)

(2)

(3)

(4)

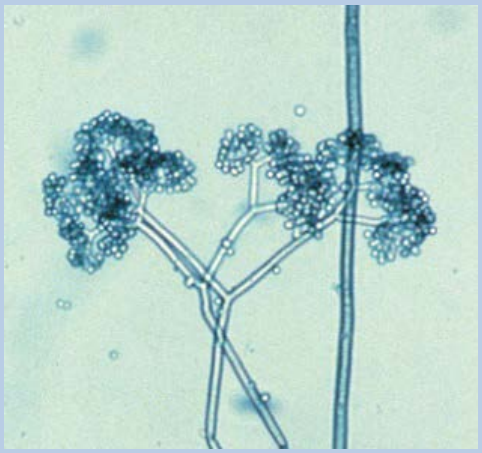
Figure 1. Helpful tools to examine rotten fruit

*Botrytis cinerea (*grey mould)

Rotten fruit develops a grey-brown colour mould when the fungus starts to grow and the spores give it a “sandy” texture when it is not wet. The older mould on rotten fruit can become flattened and tan in colour.

Cherry pip on orchard floor covered in Botrytis spores

How it looks with a hand lens or low power microscope. The strands of the fungus are black (mycelium) and the spores are white/grey. The strands are branched and the spores form in clumps on the end. (Photo: John Deacon)



How it looks when prepared on a glass slide and viewed with a high power microscope. (Photo: APS net)

Photos: Karen Barry except where mentioned

Monilinia laxa and *Monilinia fructicola* (brown rot)

These photos will help you determine if you have *Monilinia*, but not which species. It is only possible to determine whether it is *M. laxa* or *M. fructicola* for certain by laboratory testing.

Aborted fruit with dense sporulation

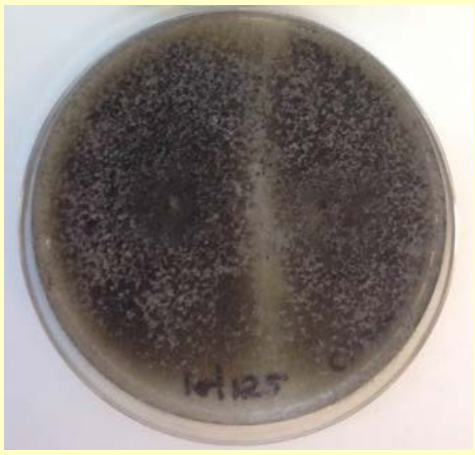
How it looks with a hand lens or low power microscope. (Photo: José Luis, *M. laxa*)

How it looks on a glass slide and viewed with a high power microscope. These are chains of spores. The material has been stained with a blue dye.

Photos: Karen Barry and Kevin Dodds, except where mentioned

Alternaria alternata

This fungal pathogen causes sunken spots that turn dark and dull in appearance. Fungal growth covers the lesions.



How it looks when grown on an agar plate. Growth looks white at first and then turns dark.

How it looks on a glass slide and viewed with a high power microscope. The spores are large, multi-celled and very distinctive. These spores have not been stained.

(Photo: Eric McKenzie)

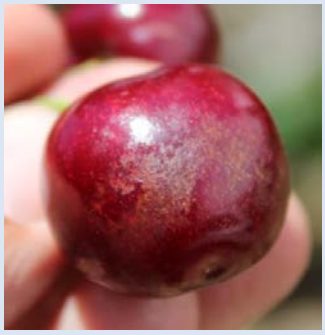
Photos: Len Tesoriero and Kevin Dodds, except where mentioned

Photo reference of other common disease and damage symptoms

Frost damage
(Kevin Dodds)

Earwig damage
(Kevin Dodds)

Thrips damage
(Kevin Dodds)



Russet (wind, cold injury)
(Kevin Dodds)

Sclerotinia white rot
(Len Tesoriero)

Bacterial canker spot
(George Sundin)

Bitter rot
(unknown)

Appendix

Diagnostic services

Queensland
Queensland department of Agriculture and Fisheries also have several locations see below.
https://www.daf.qld.gov.au/plants/health-pests-diseases/plant-pest-diagnostic-services

Tasmania
Plant Biosecurity and Diagnostics Branch
Biosecurity Tasmania
Dept of Primary Industries, Parks, Water & Environment
New Town Laboratories
13 St John's Avenue
NEW TOWN
TAS 7008
AUSTRALIA
Ph: 03 6165 3252
http://dpipwe.tas.gov.au/biosecurity/plant-biosecurity/plant-health-laboratories/plant-pathology-laboratory

Western Australia
AGWEST Plant Laboratories
Department of Agriculture and Food
Reply Paid 83377
3 Baron-Hay Court
South Perth WA 6151
+61 (0)8 9368 3721
agwestplantlabs@agric.wa.gov.au
https://www.agric.wa.gov.au/agwest-plant-laboratories

South Australia
Delivering samples
Courier:
SARDI, Plant and Soil Health
Plant Research Centre
Gate 2B, Hartley Grove
Urrbrae SA 5064
Postal:
SARDI, Plant and Soil Health
Locked Bag 100
Glen Osmond SA 5064
Phone: (08) 8303 9585 or (08) 8303 9358
Fax: (08) 8303 9393
Email: sue.pederick@sa.gov.au
http://www.pir.sa.gov.au/research/services/crop_diagnostics/seed_and_crop_testing

NSW
NSW department of Primary Industries have 2 laboratory sites, Menangle and Orange (see below for contact details).
http://www.dpi.nsw.gov.au/aboutus/services/das/plant-pests-diseases#Available-services

Victoria
Crop Health Services
Telephone: (03) 9032 7515
Fax: (03) 9032 7604
AgriBio Specimen Reception
Main Loading Dock, 5 Ring Road,
La Trobe University, Bundoora VIC 3083
http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/diagnostic-services

Glossary of terms

Mycelium – The long network of individual threads/strands (hyphae) that make up the vegetative body of a fungus

Hyphae – Individual fungal threads/strands

Spores – The reproductive unit of fungi (it is similar to the seed of a plant – but much smaller)

Author: Dr Karen Barry
2016

Produced by the Tasmanian Institute of Agriculture with funding from Horticulture Innovation Australia Ltd. project CY13001.