

**PICTORIAL GUIDE FOR IDENTIFICATION OF BROWN ROOT ROT DISEASE
INFECTED TREES**

1.0 SYMPTOMS

Typical symptoms of BRRD infection include:

- Sparse foliage density – Foliage density of the BRRD infected trees may be thinner than uninfected trees under the same environmental conditions;
- Abnormal foliage colour – Foliage of the BRRD infected trees may become chlorotic;
- Abnormal leaf size – Leaf size of the BRRD infected trees may be reduced comparing to the leaves on uninfected trees; and
- Dieback twigs – the BRRD infected trees may have observable defoliation, leaving dieback twigs in the tree crown.

Sparse foliage density



Abnormal foliage colour



Abnormal leaf size



Dieback twigs



2.0 SIGNS

Typical signs of BRRD infection include:

- Fungal fruiting bodies (resupinate and bracket forms) – Fungal fruiting bodies could be found mostly on the basal trunks or exposed roots. The resupinate form is flat and smooth while the bracket form is leathery and hard. The fungal fruiting bodies are usually in brownish-gray to dark gray color, producing colourless spores;
- Mycelial crust – ‘Stocking’ that forms on the roots and basal trunk with a white advancing margin when actively growing, and would turn brown as it ages. Drops of clear and brownish exudate could also be found on actively growing crust;
- Mycelial nets – A network of brownish lines on the soft wood with white rot, underneath the tree bark; and
- Soil aggregates – A layer of adhering mixture of soil particles, debris and fungal mycelia of *Phellinus noxius*, usually on roots and basal trunks.

Fruiting bodies (Resupinate and bracket forms)



Fruiting bodies (Resupinate form)



Fruiting bodies (Bracket form)



Mycelial crust



Mycelial nets



Soil aggregates

