

PHYTOPHTHORA ROOT AND COLLAR ROT

Causal agents: *Phytophthora cinnamomi*, *P. nicotiana* and other species.

Hosts: *Acacia mearnsii*, *A. decurrens*, *Eucalyptus smithii*, *E. nitens*, *E. macarthurii*, *E. benthamii*, *E. grandis*, *E. fastigata*, *E. fraxinoides*

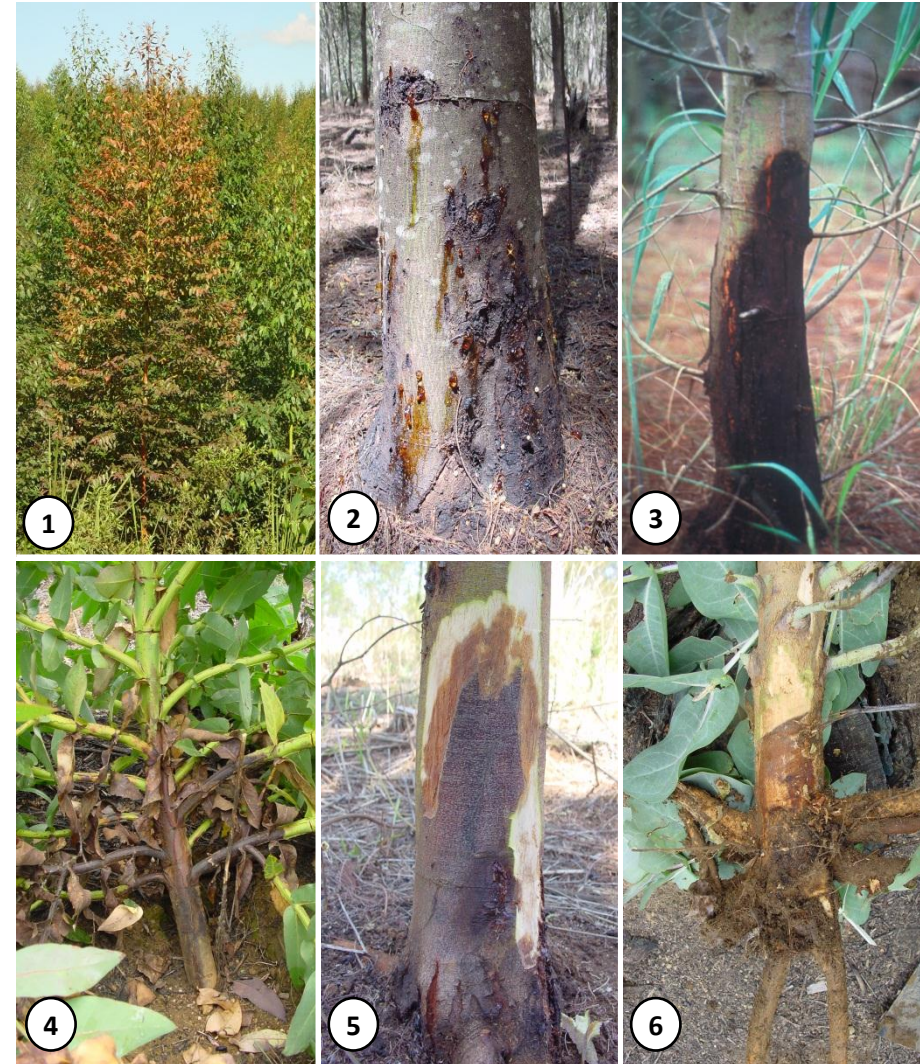
Geographic distribution: Entire South Africa

Relative importance: May result in death of young trees. Older trees may also die, especially under very hot, dry conditions. Results in basal cankers at the bases of trees. On *A. mearnsii* these cankers affect the ease of bark stripping and results in the drying out of the thickest most valuable bark at the bases of trees.

Symptoms and signs: Rapid wilt and death of most susceptible trees is common, especially when trees are young (Fig.1). Infection often results in basal cankers characterised by black discoloration of the bark, cracking of the bark and exudation of gum (Fig. 2,3,4). The edges of these cankers are visible as sunken areas in the bark if investigated closely. Cutting into the bark of cankers will reveal the death of the bark and phloem (Fig. 5,6). The foliage of infected trees often change colour, become reddish or yellow before drying out.

Biology: *Phytophthora* spp. are motile organisms which can "swim" in water and actively spread from tree to tree. These organisms are soil-borne, commonly infecting the roots and root collars of trees. Resting spores (oospores) germinate under favourable conditions (water availability is a requirement) to infect trees. Infection results in the death of roots and girdling of stems. Symptoms often only become visible under hot, dry conditions when the infected root system cannot provide in the increased demand for water.

Management: Avoid planting of trees in areas that are conducive to water logging. Also avoid off-site planting of tree species. The selection of disease tolerant provenances is possible and has been practiced for *A. mearnsii* by the ICFR for many years.



(1) Eucalypt showing foliage discolouration as a result of *Phytophthora* collar infection, (2) gummosis/bleeding and black discoloration of the base of an *A. mearnsii* tree, (3) black butt disease of *A. mearnsii*, (4) root collar discolouration of a *E. nitens* tree infected by a *Phytophthora* sp., (5) brown discolouration of dead phloem of *A. mearnsii*, (6) brown discolouration of the cambium and phloem of an infected *E. nitens* tree.