

BLACK BUTT OF *ACACIA MEARNsii*



INTRODUCTION

Black butt of *Acacia mearnsii* is perhaps the best known disease of this tree in South Africa. The disease was first described at the beginning of the century as part of a disease complex, known as gummosis. Black butt generally does not lead to tree death, but reduces both the yield and quality of the bark. The disease affects trees of any age, but only shows the characteristic symptoms on older trees.

Black butt is a complex disease and numerous pathogens are associated with symptomatic tissue. A number of *Phytophthora* species, including *P. parasitica* and *P. boehmeriae*,

SYMPTOMS

Black butt affects trees of all ages, although symptoms on younger trees are not typical. The disease is named after the black discoloration of the bark at the bases of older trees. This discoloration is accompanied by cracking of the bark and the exudation of gum from active cankers. Initial symptoms of the disease are a mottling of the bark at the base of the trees and/or the exudation of gum. Infection occurs through natural growth cracks in the roots and the root collar, as well as through wounds in these areas. Infection of trees through lenticels has also been suggested.



Mottled lesion on the bark of a newly infected tree.

In severe cases, the black discoloration at the base of trees may spread to eventually cover their entire length. The advanced lesions, however, do not appear to be caused by the *Phytophthora* species, since these fungi have not been isolated from older infections. Various other opportunistic pathogens and saprophytes have been isolated from these lesions, and are probably implicated in disease development.

Black butt has a cosmopolitan occurrence in South Africa. It is found in all the wattle growing areas in the country and also affects natural stands of black wattle.

MANAGEMENT STRATEGIES

Management of black butt is complicated, by the fact that the primary causal agents are soil borne pathogens with a cosmopolitan distribution. Control using fungicides is not feasible since it is costly, and difficult. The best strategy for disease avoidance is to plant selected seed, tolerant to this disease. Limiting damage to the roots and bases of the trees is also advised.

are associated with initial infections. Other fungi, such as *Botryosphaeria dothidea* can be isolated from advanced lesions and are believed to contribute to disease development.



Stem canker, typical of black butt.

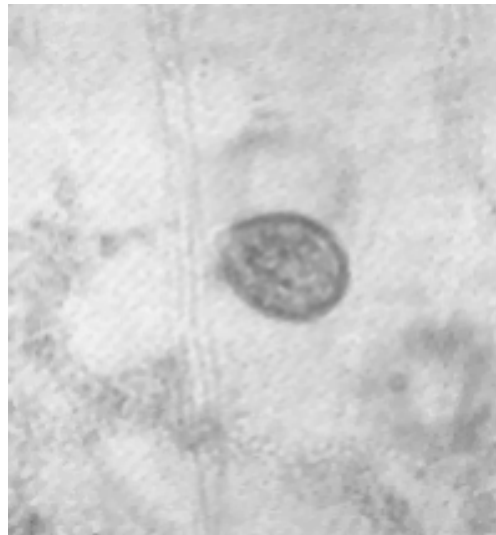
HOST RANGE

Phytophthora parasitica and *P. boehmeriae* infect a wide range of hosts, including eucalypts, pines, tobacco and citrus. Black butt affects all black wattle families currently planted in South Africa. Individual trees, however, display tolerance to the disease.

BIOLOGY AND OCCURRENCE

Phytophthora species require moist conditions for infection, since infection takes place by motile, water-borne zoospores. *Phytophthora parasitica* and *P. boehmeriae* are common soil borne pathogens, with a world wide distribution. They can survive in the soil for extended periods of time, through the formation of specialised, thick walled structures such as chlamydozoospores, oospores, and encysted zoospores.

Black butt affects the thickest, most valuable bark at the base of trees. It not only reduces the quality of the bark, due to the cracking and blackening, but also results in difficulty with bark stripping. It does not kill trees except in extreme cases, but it can reduce tree growth.



Sporangium with motile zoospores.



Developing canker exuding gum from small lesions. Note the older, cracked bark associated with the canker in the previous season.



Canker spreading from the roots to the base of the stem.

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