

BACTERIAL BLIGHT OF *EUCALYPTUS*



Typical symptoms of bacterial blight and die-back

INTRODUCTION

In 1998, a severe bacterial disease appeared in a single nursery in KwaZulu/Natal on ramets of an *E. grandis* x *E. nitens* (GN) hybrid clone. The disease subsequently spread to other nurseries and commercial plantations and was reported from different *Eucalyptus* species, hybrids and clones. The causal agent was identified as *Pantoea ananatis* and this represents the first report of a *Pantoea* sp. infecting *Eucalyptus* spp. It also records a serious new disease problem affecting one of the most widely planted forest trees in South Africa and elsewhere in the world.

HOST RANGE

Pantoea ananatis is a known pathogen of pineapple fruitlets, Sudangrass, cantaloupe fruit, sugarcane, onions and honeydew melons. The *P. ananatis* isolates from eucalypts have the ability to infect a number of *Eucalyptus* clones, hybrids and species including *E. grandis*, *E. saligna*, *E. dunnii*, *E. nitens*, *E. smithii*, *E. grandis* x *E. camadulensis* (GC) and *E. grandis* x *E. urophylla* (GU). This is of considerable concern as these represent some of the most crucial planting stock on which forestry in South Africa is based.

SYMPTOMS AND OCCURRENCE

Typical symptoms of bacterial blight include tip die-back and leaf spots on young leaves. The leaf spots are initially water-soaked and often coalesce to form larger lesions. The pathogen appears to spread from the leaf petiole into the main leaf vein and from there to the adjacent tissue. Thus lesions on the leaf are often concentrated along the main veins. Leaf petioles become necrotic, which results in premature abscission of the leaves.

Trees assume a scorched appearance in the advanced stages of the disease and, after repeated infections become stunted. In humid conditions bacterial exudates are often evident on diseased tissue. Due to the resultant formation of many new growing tips and epicormic shoots, the trees have a bushy appearance. Highly susceptible species, hybrids and clones exhibit a combination of die-back and blight symptoms while those more tolerant show only leaf spot symptoms.



Leaf spots on young leaves

BIOLOGY

Bacterial blight and die-back on *Eucalyptus* is more prevalent in areas in South Africa where the temperatures are relatively low (between 20-25°C) and the relative humidity high. The means of entry of this pathogen into its host has yet to be established. However, in nurseries where vegetative propagation is practiced, the bacterium enters the cut surfaces of cuttings and reduces their ability to root by nearly 100%.

MANAGEMENT STRATEGIES

Bacterial blight and die-back has become a serious problem in nurseries and young plantations throughout South Africa. Not only is the bacterium infecting cuttings but also ramets in the nursery. This seriously hinders the ability of forestry companies to produce vegetative material for rooting. There are, however, significant differences in susceptibility among *E. grandis* clones, and this provides an excellent opportunity for the selection of tolerant material. Development of management strategies to reduce the impact of this disease is now a priority. A rapid screening technique to detect this bacterium is needed, and commercially important clones should be tested to determine their level of tolerance to this disease.





Advanced stages of infection caused by *P. ananatis*



Early symptoms of infection i.e. water soaking of area adjacent to main vein and petiole attachment

Advanced stages of the disease



Under humid conditions, yellow to creamy bacterial exudate is seen on the leaf surface

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