

Ganoderma Diseases

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INTRODUCTION

Ganoderma species belong to the Basidiomycete, or club and mushroom, group of fungi. They occur worldwide including most areas of Australia. Like many large Basidiomycetes, they are involved in the natural decomposition of dead wood and other organic matter. However, they are also an important cause of disease in many plants, such as *G. boninense* in oil palms.

The disease starts with rot development in the basal area of plants, followed by the growth of distinctive structures known as "brackets" and finally plant death. In Darwin, the disease is particularly prevalent in aging golden cane palms (*Dypsis lutescens*) and black wattles (*Acacia auriculiformis*).

PATHOGEN SPREAD AND INFECTION

Ganoderma species is a soil-borne fungus. Those that affect trees in the NT appear to occur naturally and are widely spread. Dispersal is through airborne spores (basidiospores) which are released from the underside of brackets. Movement of diseased material or infested soil may also contribute to dispersal. Infections occur through wounds in the trunk or the root system and travels upwards through the trunk, killing the wood and eventually the tree.

DISEASE SYMPTOMS

In the early stages of infection, plants may tolerate the disease and do not express symptoms. However, as the plant ages and the infection progresses, plants may become stressed or unthrifty. A loss of foliage and die-back of individual branches may occur. If infection is advanced, death can be either slow or rapid depending on environmental conditions such as water availability and temperature.

At the advanced stage, the disease can be generally identified by the distinctive fruiting body or bracket, which grows on the trunk of infected plants. Brackets emerge once the infection has spread significantly through the plant, resulting in its death.

The bracket is hard or woody, semi circular in shape and quite large (up to 15 cm in diameter and 5 cm thick). Brackets range in colour from dark to chocolate brown and even orange, often with creamy white edges. The top of the bracket may appear glossy and the underside white.



Although not always present, brackets are usually found at the base of the trunk either singularly or in a cluster.

In the Top End, the disease is particularly common in aged and significantly stressed plants which are in natural decline (golden canes) or have reached the end of their life expectancy (black wattles).

HOST PLANTS

Ganoderma species have been found growing on a number of dead or dying plants in the NT, including golden cane (*Dypsis lutescens*) and *Carpentaria acuminata* palms, *Ficus* species, northern kurrajong (*Brachychiton populneus*), *Citrus* species, *Acacia* species, poinciana (*Delonix regia*), *Albizia lebek*, *Jacaranda acutifolia*, custard apple (*Annona squamosa*), guava (*Psidium guajava*), *Casuarina equisetifolia* and white cedar (*Melia azedarach*).

CONTROL

Unfortunately there is no effective chemical treatment and no known cure for *Ganoderma* diseases. The only option is to reduce the occurrence of disease by reducing the amount of inoculum present in the soil. Remove brackets when they occur in the garden. If a plant becomes diseased, remove as much of it as possible, including the stump and roots.

In the Top End, the disease tends to occur only in highly-stressed and/or old plants, destroying them internally and making them unstable. Remove such trees if they become a safety concern.

Contact Plant Pathology for further advice.

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