

# Bananas Going?

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While natural disasters have a large local immediate impact on bananas, a fungal attack, from such as, 'Black Sigatoka' disease is one that may significantly affect their worldwide production. Banana is a large monocotyledonous herbaceous plant of the Order Zingiberales, Family Musaceae, and Genus *Musa* that originated in Southeast Asia.

Nearly all commercially produced bananas come from a single seedless clone, the 'Cavendish' cultivar. "Banana" usually refers to the soft, sweet "dessert" bananas that are usually eaten raw while "plantains" have a firmer, starchier fruit, generally used in cooking rather than eaten raw. Because bananas and plantains will produce fruit year-round, they are an extremely valuable source of food during the "hunger" season for many developing countries.

In 2003, India led the world in banana production, most of which was for domestic consumption. In Australia, annual banana production is approximately 250 000 tonnes, mostly Cavendish, consumed locally.

The Cavendish gained popularity in the 1950's after the previously mass produced cultivar, Gros Michel, was effectively destroyed by Panama disease, caused by a fungus, *Fusarium oxysporum* f.sp. *cubense* that inhabits the soil.

A long term banana disaster is potentially posed by the Ascomycete fungus "Black Sigatoka", *Mycosphaerella fijiensis* M. Morelet.[anamorph: *Paracercospora fijiensis* (Morelet) Deighton], also known as Black Leaf Streak, significantly reduces fruit yield by 50% or more, with premature ripening affecting export quality. The fungus is particularly damaging and difficult to manage and has a wider host range than other banana fungal pathogens. Symptomatically, early lesions are reddish brown areas on the underside of the leaves. Black Sigatoka occurs in Papua New Guinea and on several islands in Torres Strait. It has also occurred at five locations on Cape York Peninsula since 1983. In April 2001 it was found for the first time in a commercial production area near Tully in north Queensland, but has since been eradicated. All parts of the banana plant can be infected by the fungal spores including the suckers used for new plantings.

Although first reported in the Sigatoka Valley in Fiji in 1963, it is believed that Black Sigatoka was present in several parts of the Pacific Rim years before. Today, the disease can be found in almost every region around the globe where banana is cultivated

The management of Black Sigatoka in export plantations is for frequent use of fungicides, to remove affected leaves, leave adequate spacing between plants and ensure efficient water drainage. The use of fungicides is estimated to cost about 20% of the retail price and Cavendish cultivars are so susceptible to the fungus that it requires increasingly heavier fungicide spraying for effective management.

In the many smallholdings, they rely upon cultural practices, typically interplanting with other crops not susceptible to the fungus and planting in partial shade to reduce the severity of the disease. Unfortunately, these practices substantially reduce the crop yield.

While there are resistant cultivars, they are less productive or desirable, of lesser export quality and significantly, have a reduced shelf life.

However, recent work has developed clones that show resistance to *M. fijiensis* that produce good crop yields, but as they do not meet the requirements of the export trade, they are only grown for the domestic markets in East Africa, tropical America and the Caribbean.

Perhaps the most significant human impact of Black Sigatoka is that it has the potential to devastate the world wide crop which would significantly affect those people in developing countries that depend on bananas as an important and essential year round food supply.

With the advent of strains of Black Sigatoka ever more resistant to fungicides we need to ask are we facing a period where the banana, as we know it, is going? Good agricultural and quarantine management has allowed Australia to continue to grow the Cavendish, but for how much longer?