PLANT PATHOLOGY NOTE: NO. 24
BACTERIAL HEAD ROT OF BANANA

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INTRODUCTION

Bacterial head rot of banana is also called 'rhizome rot' or 'tipover'. At Laloki Research Station, N.C.D., this disease has recently caused many newly planted banana rhizomes to die. (A rhizome is part of the stem that grows underground. Both roots and shoots grow from it).

The disease is caused by a distinct strain of the bacterium *Erwinia caratovora*. Other strains of *E. caratovora* cause disease in many kinds of vegetable crops throughout the world. For more details, see Plant Pathology Note No. 18 in HARVEST, Volume 8, No.3, pp. 141-143.

You will probably find head rot of banana wherever bananas are grown. The disease is often not recognised because there are many other causes of poor growth of cultivated banana plants. Often head rot is found together with nematode infestation of the roots, or insect attack on the rhizome.

Head rot has been a very serious problem in Central America. There, the climate and soils are thought to be specially suitable for development of the disease.

The biggest losses occur in newly planted rhizomes or within the first year after planting. The disease is much less common in older plants. It occurs most often during periods of heavy rainfall.

SYMPTOMS

In young plants the infected rhizomes may rot away completely and fail to sprout. The leaves of infected young plants become yellow and stunted.

Banana plants with bacterial head rot of banana can be easily pushed over, like this plant - hence the name 'tip-over'.

In mature banana plants, the stems sometimes become soft and rotted at soil level. The plants are easily pushed over, hence the name 'tip-over'.

Infection usually occurs through wounds. A dark water-soaked area appears on the stem or rhizome around the damaged part. In dry weather, the infection often remains in the outer layer of the rhizome. Even severely rotted rhizomes may recover if there is no rain for several days after the symptoms have developed.

In wet weather the disease may spread throughout the rhizome, and cause cavities (spaces) within the stem tissue.

The time between the first symptoms appearing, and death of the plant varies widely. In newly-planted rhizomes, especially small ones weighing under 500 g, death can occur within a few days. Older plants may take more than 10 weeks to die.

SPREAD OF THE DISEASE

The bacterium which causes head rot of banana is common in the soil. It is probably spread from diseased to healthy rhizomes during digging and planting.

Because the development of the disease depends on the weather, symptoms are sometimes difficult to see on rhizomes used for planting material. The disease will only become a problem if there is a lot of rain or too much irrigation after planting.

Insects may play a part in spreading the disease. In Central America, the disease often appears when tunnels are made in banana plants by boring insects. In the outbreak at Laloki, however, there was little evidence of insect attack.

CONTROL

There is no chemical control for head rot of bananas. The best way to control the disease in newly planted rhizomes is not to plant during periods when there is a lot of rain or on soil which is poorly drained. Losses from the disease may be greater when rhizomes weighing less than 500 g are planted, and when new plants are developed from the central bud rather than axillary buds.

The variety Cavendish is thought to be more resistant to head rot than other varieties. Some varieties commonly grown in Papua New Guinea are highly susceptible.

FURTHER READING

Loos, C.A. (1962). Factors affecting incidence of rhizome rot caused by *Erwinia caratovor* of Gros Michel and Lacatan bananas. *Phytopathology* 52: 110-114.

Tomlinson, D.L. (1982). Bacterial soft rot of vegetables. *Harvest* 8 (3): 141-143.

FURTHER INFORMATION

For further information and advice about head rot of banana contact:

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