

Blood disease

What is blood disease?

Blood disease is a serious bacterial wilt pest of banana caused by the blood disease bacterium (BDB). BDB is closely related to, but distinct from, the bacterium that causes Moko and bugtok, and produces very similar symptoms.

Blood disease results in reduced numbers of marketable bunches and causes significant wilting, generally reducing the vigour of the tree and killing whole plants in severe cases.

What do the symptoms look like?

Initial symptoms of blood disease are yellowing and wilting of leaves, which die and can form a skirt of dead leaves around the plant stem. Younger leaves may turn yellow before dying. Eventually the whole plant takes on a wilted appearance.

Fruit can ripen prematurely or split and sometimes fruit may appear unaffected but is internally discoloured reddish-brown and is often dry or rotted. Stem internal tissue may be reddish-brown and this discolouration can extend from the corm up to the fruit branches.

Blackened or shrivelled flower buds and peduncles are also common. Cut stems or peduncles exude bacterial ooze that may vary in colour from milky to yellow to reddish-brown to black.

Symptoms change depending on the type of banana and the age of the plants.



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Blood disease symptoms on banana in Sulawesi



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Skirts of dead leaves can form around the bottom of infected plants



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Discolouration of vascular tissues can occur throughout the plant, including bunch stems

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What can it be confused with?

Moko (caused by *Ralstonia solanacearum* race 2) and Panama disease (caused by *Fusarium oxysporum* f. sp. *cubense*) also cause general wilting of banana plants. Moko and bugtok (also caused by *R. solanacearum* race 2) can also cause internal fruit discolouration.

What distinguishes blood disease from Panama, bugtok or Moko?

Panama disease does not cause internal fruit discolouration or produce bacterial ooze. Bugtok causes internal fruit discolouration but does not cause wilting of the whole plant.

Laboratory testing is required to distinguish between Moko and blood disease.

How is it spread?

BDB persists all year round and can be spread by infected plant parts, by insects and in soil or water. Insect transmission can occur from infected male buds to distant flowers. BDB can survive for one year in soil contaminated with infected plant residue. Root to root infection is also possible.

Where is it now?

Blood disease occurs in Indonesia. It is of particular concern due to its presence in West Papua, with its close proximity to Australia's northern banana production zones.

How can I protect my farm from blood disease?

Only use pest-free planting material.

Check your farm frequently for the presence of new pests and unusual symptoms. Make sure you are familiar with common banana pests, so you can tell if you see something different.

Bacterial oozing from any banana plant or heliconias should be reported immediately.

If you see anything unusual, call the Exotic Plant Pest Hotline on 1800 084 881.

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