

PANAMA DISEASE

Fusarium Wilt 'tropical' race 4

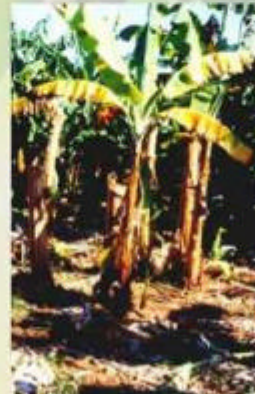


Healthy plant
Healthy green leaves

Fusarium wilt, also known as Panama disease, is caused by the fungus *Fusarium oxysporum* f.sp. *cubense* which inhabits the soil. A strain of this disease known as 'tropical' race 4 (VCG 01213/16), which is known to be highly virulent on Cavendish, has been found in the Northern Territory. *Fusarium* wilt is a devastating disease with potential to destroy plantations. Clean planting material, early detection and containment are key strategies to prevent the spread of this disease.



Early Stage
Marginal leaf yellowing



Mid Stage
Yellowing of older leaves

EXTERNAL SYMPTOMS

- Symptoms can become apparent at any stage but are particularly evident in plants that are stressed due to producing a bunch.
- Infected pseudostems eventually die, however suckers may remain symptomless for some time.



Healthy Plant
A cross section of a healthy pseudostem



Early Stage
A cross section of the pseudostem showing discoloration of the vascular tissue

INTERNAL SYMPTOMS

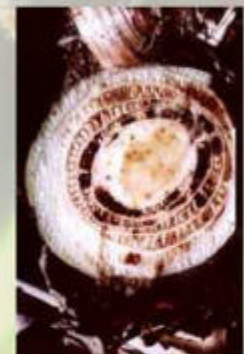
- Internal symptoms are observed in pseudostems cut near ground level.
- The earliest symptoms are yellowish streaks in the pseudostem corresponding to infected vascular (water conducting) tissue.
- These streaks become reddish-brown to black as the disease develops.
- In plants that survive long enough to produce a bunch, discoloured specks may be seen in a cut end of the bunch stalk.



Mid to Late Stage
Dark brown-black vascular tissue shown in cross section and in vertical section



Late Stage
Leaves later turn brown and may collapse at the petiole, leaving a "skirt" of dead leaves



Mid to Late Stage
Dark brown-black vascular tissue shown in cross section of pseudostem

HOW IS IT SPREAD?

- Infected planting material.
- Soil from infected plantations - on machinery, vehicles and footwear.
- Run-off water.
- Plant-to-plant contact via infected roots.
- Panama Disease can survive in the soil as resting spores (chlamydospores) for 20 years or more.

CONTAINMENT RELIES UPON EARLY REPORTING

**If you see symptoms call DPIF immediately on 89992311
DO NOT DIG UP OR REMOVE AFFECTED PLANTS**

