WWW.INDUSTRY.NSW.GOV.AU

primefacts

FOR PROFITABLE, ADAPTIVE AND SUSTAINABLE PRIMARY INDUSTRIES

AUGUST 2010 PRIMEFACT 1029 (REPLACES AGNOTES DPI-423 AND DPI-353)

Panama disease in bananas

Peter Newley

District Horticulturist, Industry and Investment NSW, Coffs Harbour

Panama disease

Panama disease is a fungal disease that kills banana plants. It cannot be eradicated and can put banana farmers out of business.

Panama disease invades plants through the roots and blocks the vascular tissue, cutting off the supply of water and nutrients. Banana plants of all ages are susceptible. Dead plants leave behind spores that will infect any future plantings.

Panama races

The fungus that is known as Panama disease in bananas is *Fusarium oxysporum f. sp.* cubensis (*Foc*). There are four races of Panama disease which affect different groups of banana varieties.

Race 1 is common in the Northern Rivers in NSW as well as Queensland's Sunshine Coast and Brisbane. It is less widespread in Coffs Harbour, Woolgoolga, Bundaberg and Mareeba. Race 1 will kill ladyfinger, ducasse and plantain bananas.

Race 2 affects cooking varieties such as Bluggoe.

Race 3 only affects some species of Heliconia.

Race 4 has two sub types which will kill varieties affected by Race 1 and Race 2, as well as Cavendish types.

Subtropical Race 4 has been found in the Tweed, South East Queensland and Bundaberg districts.

Tropical Race 4 was found in the Northern Territory in 1997 and is so far restricted to the Northern Territory. It is much more virulent than subtropical Race 4.

Figure 1. Panama disease symptoms on ladyfinger bananas. Photo by Jeremy Bright, I&I NSW.

The first symptom is yellowing of the leaves, starting from the older leaves and progressing to the younger leaves. Vertical splitting of the corm at ground level may also be an early indicator of Panama disease. Subsequent wilting of leaves will leave most leaves hanging down like a skirt around the pseudostem with a few young upright leaves giving a spiky appearance to the plant. Ultimately, all the leaves will die and hang down.

Once a plantation has Panama disease, there is no cure or control mechanism. The spores will remain in the soil for many years and susceptible varieties cannot be grown.

Panama disease was first discovered in Australia in the 1870s and since has spread to most banana growing districts

NSW GOVERNMENT Industry & Investment

The disease spreads within the plantation when spores are moved in soil by water, workers, vehicles, animals or movement of planting material.

The disease has mostly been spread between plantations by movement of infected planting material or soil.

How can the disease be eradicated?

Currently, it cannot. Once a plantation is infected, susceptible varieties cannot be grown.

How can Panama be kept away?

Panama disease has no natural long distance dispersal mechanisms, so it can be kept out of a plantation. Growers who want to grow susceptible varieties in the long term need to quarantine their farm. There are many farms in Australia that cannot grow ladyfinger or ducasse varieties.

Recognise and manage the risk

Never use planting material from farms that have Panama disease. The only guaranteed disease-free plants are from QBAN accredited tissue culture nurseries.

Restrict entry to your farm and ask people who must enter to clean their vehicle and boots. A sign on your gate will let visitors know your requirements.

Don't disturb infected plants and don't put bunch stalks from an infected patch back into the plantation.

Don't use second-hand cartons and make sure any pallets entering your farm are clean.

Slowing the spread on-farm

Panama is spread by spores moving in infected soil and between roots of neighbouring plants. Water flow will, in time, spread the disease to areas downhill from an infected area.

Traffic patterns through the plantation may need to be changed to minimise the speed of spread. The infected site should be planted with grass to minimise spread of spores by soil erosion. Spores can also contaminate irrigation water.

Using resistant varieties

If a farm is infected with Panama disease, growers will need to have the disease sent to a laboratory to determine which race of the disease is present. If a Ladyfinger grower has Race 1, Cavendish varieties could be planted, as could some of the varieties from the FHIA breeding program. Goldfinger is the best known of these varieties, but is no longer widely grown. FHIA18 has fruit like a ladyfinger and can be planted into Panama infected plantations and GX (also known as High Noon) is currently grown in small areas in NSW.

ISSN 1832-6668

Replaces Agnotes DPI-423 and DPI-353

Check for updates of this Primefact at:
www.dpi.nsw.gov.au/primefacts

Job number 10096