

CONTROL

The most important measures to adopt at present are to;

1. Plant or only import certified “clean” or disease free planting material
2. Closely monitoring for the symptoms of wilt diseases in the cultivated bananas
3. Isolation and eradication of infected plants if suspected symptoms of wilt disease are observed.

But please remember that: Fusarium Wilt Tropical Race 4 is currently not present in the Caribbean and everything possible must be done to keep this disease out of the Region

ECONOMIC IMPACT

Fusarium wilt is a major factor limiting production of many cultivars and abandonment of plantations.

The introduction of TR4 could lead to substitution of most popular banana varieties by others of lower acceptance and introduction of new models of banana production that would require different and more costly cropping practices.



WHAT CAN WE DO?

- Do NOT bring into your country any soil or agricultural propagative / planting material without the required Plant Quarantine Import Permits/Approval
- When you travel declare all agricultural items.
- Report any suspected signs and symptoms consistent with Fusarium Wilt to your Ministry or Department of Agriculture
- Follow all prevention and control recommendations from your Ministry or Department of Agriculture

WHAT ARE THE REGIONAL BODIES DOING?

- reinforcing surveillance and quarantine procedures to reduce risks of Foc TR4 introduction
- developing capacity building among extension officers and farmers
- the development and Implementation of Contingency Plan for eradication, containment and management in the event of an eventual disease outbreak



PRIORITY PEST THREATS TO THE REGION FUSARIUM WILT OF BANANAS AND PLANTAINS – TROPICAL RACE 4



Fusarium oxysporum f. sp. cubense (Foc).

PROTECT

Safeguard our agriculture & nutrition do NOT bring in undeclared agricultural planting material or soil.

DETECT

Monitor for Signs & Symptoms of the *Fusarium oxysporum f. sp. cubense (Foc)*.

REACT

Report any suspected signs and symptoms to your Ministry or Department of Agriculture and follow ALL recommendations for prevention and control.

FUSARIUM WILT OF BANANAS AND PLANTAINS – TROPICAL RACE 4

Fusarium wilt of banana, also known as Panama disease is a destructive fungal disease caused by the soil-borne fungus - *Fusarium oxysporum* f. sp. *cubense* (Foc). There are four races of the fungus:

- Race 1 infects Gros Michel and many other banana varieties, but not Cavendish
- Race 2 generally infects cooking bananas such as Bluggoe
- Race 3 infects only Heliconia species and not bananas
- Race 4 not only infects most varieties affected by race 1 and race 2 but also Cavendish on which > 90% of the world banana trade is based

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SYMPTOMS AND INFESTATION

The first external symptom of Panama disease is the irregular yellowing of the margins of older leaves, which later turn brown and dry out. These leaves eventually collapse along the leaf stalk or at the junction of the stalk and stem, resulting in a skirt of dead leaves forming around the lower part of the plant. Heart leaves may remain unusually upright giving the plant a spiky appearance. Following this, plants can take on a generally wilted appearance. Following this, plants

show a generally wilted appearance. Internal symptoms of Panama include brownish discolouration of the inner tissue in the corm and pseudostem. The easiest way to observe these symptoms is to cut through the pseudostem near ground level. The discolouration is usually seen as reddish-brown or black lines running up and down the pseudostem, or rings running around the cross section of tissue. Affected plants rarely produce marketable bunches.



Black lines running up and down the internal tissue of the Banana Stem



Splitting of pseudostem, which is often followed by death of the parent stem, but suckers do not necessarily die.

HOSTS

Primary hosts (cultivated or wild) includes:

- Banana (*Musa* spp., *Musa textilis*, *Musa acuminata*, *Musa balbisiana*)
- Heliconia (*Heliconia* spp., *H. caribaea*, *H. psittacorum*, *H. mariae*)

DISTRIBUTION

The map below shows the global distribution of Fusarium wilt (Not specifically Tropical race 4)



MODE OF SPREAD AND DISPERSAL

1. The fungus spreads via production and dissemination of the fungal spores: are which is normally formed on dead or dying host plants.
2. Infected planting material (suckers and rhizomes) material may not exhibit symptoms but can transmit the disease when planted in a new area.
3. It can spread over short distances via root to root contact, and through soil.
4. Spread from an infected parent plant into the suckers can also occur.
5. Furthermore, it can spread with soil and water movement or on contaminated pruning tools.