

Australian Government

Department of Agriculture and Water Resources

Global Plant Pests and the need for joint strategies



G20 MACS POTSDAM, GERMANY

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What can MACS do ? – the role of MACS

- Raise awareness and share ideas amongst members
- Provide G20 policy leadership with agricultural research and development guidance and inspiration
- Evaluate transformational research priorities
- Identify national research collaboration opportunities and priorities into global efforts and avoid duplication

Challenges to Plant Health : Food Security

What is Plant Health in relation to food security !

- Plant Health initiatives aim to have a coordinated, effective approaches to prevent and control the introduction and spread of pests and disease of plants and plant products.
- Direct and indirect damage by pests and disease is a major factor in global food security.

Examples of how Plant Health has impacted on food security !

The Potato late blight disease

caused by *Phytophthora infestans*, caused the great Irish famine of 1845, which killed more than 1 million people and prompted 1.5 million people to emigrate. The Irish famine was the worst to occur in <u>Europe</u> in the 19th century.



In India in 1942-43 a severe outbreak of **Brown Spot fungus** destroyed 50-90% rice crops in the Bengal area – which resulted in 2 million people dying from Famine.



Image taken from The Pictorial Times Originally published in October 1846.

Leptinotarsa decemlineata, also known as Colorado potato beetle, is a pest affecting potatoes. In China, 'potato as staple food strategy" was launched in 2015 and now potato production is Increasingly threatened by the Colorado potato beetle, with current Annual economic loss estimated at

3.2 million USD. In addition, the Colorado potato beetle may also affect other food plants in the same Solanaceae family, such as tomatoes and eggplants. | November 2017 | 4

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Are bananas the next challenge to food security ?

- Subsistence farmers are reliant on bananas as a staple food source
- Bananas are an important source of food, income, employment and government revenues in many countries
- Bananas including dessert banana and cooking banana, are the 8th most important food crop in the world, and the 4th most important in less developed countries (FAOSTAT, 2015)
- They are produced in 135 countries and territories across the tropics and subtropics
- The vast majority of producers are smallholder farmers who grow the crop for either home consumption or local markets (less than 15% of the global production of more than 130 million metric tonnes is exported)
- NONETHELESS the international banana export trade is worth some US\$10 billion per year. (FAOSTAT, 2015)
- A disease in bananas has the potential to be a major impactor to food security!

What is Fusarium wilt ?

- Fusarium wilt (also known as Panama disease) is caused by the soil-borne fung Fusarium oxysporum f. sp. cubense.
- Fusarium wilt in particular TR4 is considered to be the most destructive disease of banana in modern times.

There are four races of the fungus:



The global impact



The need for collaboration !

 Without coordinated, collaborative intervention, scientists estimate that the disease could affect up to 1.6 million hectares of current banana lands by 2040, representing one-sixth of current global production with an estimated annual value of USD 10 billion.



produce 145 million tonnes of bananas and plantains globally



are consumed locally



represent the economic value generated by bananas



in ten countries are already affected by TR4



rely on banana as their staple

food or as a source of income

can be caused once established in a field

Source: http://www.fao.org/3/a-i7921e.pdf

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Current global effort on Fusarium wilt



FAO Global Programme

- Is a comprehensive programme developed by the FAO
- Australia has national TR4 research underway
- Genetic improvement is critical
- Australia is still to assess its role in the programme
- The FAO programme was launched and is still to be implemented

- World Banana Forum's Third Conference was held last week 7-10th November in Switzerland
- We await the outcomes

Source: http://www.fao.org/3/a-i7921e.pdf





THE GLOBAL PROGRAMME ON BANANA FUSARIUM WILT DISEASE (PROGRAMME SUMMARY)

> PROTECTING BANANA PRODUCTION FROM THE DISEASE WITH FOCUS ON TROPICAL RACE 4 (TR4)



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Trivia Fact - The Cavendish banana

The popular Cavendish variety was named after Englishman William Spencer Cavendish, the 6th Duke of Devonshire. The original Cavendish plants were brought to Mauritius from southern China in about 1826 before being taken to England where they were propagated by the good Duke's gardener. In the 1840s, plants were taken to Samoa, Tonga and Fiji and eventually, in the 1850s, down under to Australia. Cavendish are the key eating banana today having replaced the Gros Michel after Panama Race 1 wiped them out in the 1950's.

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