



FIJI LEAF GALL DISEASE

Background

Important agricultural crops such as sugar cane are threatened by a wide variety of plant diseases and pests. Fiji leaf gall disease (previously known as Fiji disease) is classified as a major disease worldwide. The disease is considered serious in Fiji and Australia. In Fiji the disease has been found in all the sugar mill areas.

Fiji leaf gall disease was identified in Fiji in 1886 on *Saccharum* species including sugar cane and *Saccharum edule* (duruka). Historically, the diagnosis of FLG was done by noting the physical symptoms on the leaf blade and the stools.

FLG has been found mainly on the variety, Mana as this is the major variety planted and is intermediately susceptible to FLG. The symptoms are more pronounced in the ratoon crops than in plant-cane crops.

Symptoms

- Stunting of the plant.
- Raised whitish-yellow swelling (galls) on the back side of the leaf blade and midrib.
- Disease stools have a darker green colour
- Cane tops show 'bitten off' symptom

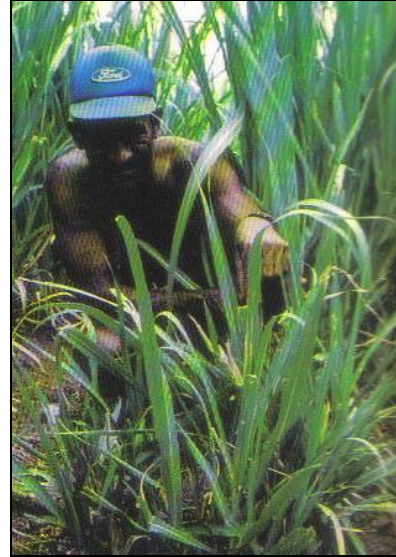


Fig 1: stunting of sugarcane caused by FLG



Fig 2: Galls (arrow) on the dorsal leaf blade



Fig 3: Cane top 'bitten off' symptom

....be vigilant of the signs and symptoms of FLG....

Organism causing FLG

Fiji leaf gall disease is caused by a reovirus, Fiji disease virus (FDV).



Fig 4: Male and female leafhoppers on cane leaf

Transmission of disease

FLG is transmitted primarily by infected seed material from an infected field to a new planting crop. The disease is also transmitted by an insect vector, *Perkinsiella* species. In Fiji, the *Perkinsiella vitiensis* is the known insect vector of Fiji leaf gall disease. Volunteer infected plants can also be a source of infection.

The virus is concentrated on the phloem vessels which the *P vitiensis* punches and feeds from, thus acquiring the FDV from the infected plant. The virus increases in the leafhopper during its life cycle. Only

the nymph stages are known to acquire the virus.

Lush green crops are usually the preferred host of the FDV insect vector with both the plant and ratoon crop.

Yield loss

Losses to FLG have been known to be 100% in susceptible varieties. Moderately susceptible varieties like Mana tend to show disease symptoms mainly in the ratoon crop.

Management of Fiji leaf gall disease

FLG can be managed with an integrated approach. The use of clean seed material; resistant sugar cane varieties such as Naidiri, LF91-1925, Ragnar and Kiuva and; the physical removal by the SRIF administered Disease Control Unit.

Disease free seed cane is important to reducing the occurrence and/ or recurrence of FLG in affected areas. This clean seed sources are available from SRIF certified seed cane nurseries. The presence of more than 90% Mana planted in the Viti Levu mills is a challenge for the stakeholders.

It is essential that the growers minimize their risk by planting at least three varieties on their farm.

Losses caused by sugar cane diseases can be reduced if we as stakeholders are vigilant in noticing the symptoms of FLG and highlighting it to SRIF