1. PaDIL Species Factsheet

Scientific Name:
*Sugarcane white leaf Phytoplasma* - (Phytoplasma)

Common Name
White leaf disease of sugarcane

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- Plant Health Australia

- Department of Agriculture, Fisheries and Forestry

- Department of Agriculture and Food, Western Australia
2. Species Information

2.1. Details

Specimen Contact: Dr Jose R. Liberato - jose.liberato@nt.gov.au
Author: Liberato JR, Sakuanrungsirikul S, Sdooee R & Charaensatapon R
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2.2. URL
Live link: http://www.padil.gov.au:80/pests-and-diseases/Pest/Main/136665

2.3. Facets
Status: Exotic Regulated Pest - absent from Australia
Group: Phytoplasmas
Commodity Overview: Field Crops and Pastures
Commodity Type: Sugarcane
Distribution: Africa, South and South-East Asia

2.4. Diagnostic Notes

Symptoms
Initially, a single white or cream line parallel to the midrib occurs, which can be seen from either side of the blade. Later, several straight white to light green to yellow stripes develops parallel to the midrib develop extending along the entire leaf length, but rarely onto the upper portion of the leaf sheath. The stripe wide ranges from narrow pin stripe to as broad as the leaf. A mottled pattern of normal or light green dot, spot, streak or patch islands may develop on a white background, varying in size and shape. If there are many green islands, the leaves will look green. As the disease develops, the plant vigour decreases. Others symptoms are stunted stalks, absence of side shoots on the upper part of infected stalks and abnormal tillering (Ling 1962).

The pathogen:

Pleomorphic Phytoplasma bodies have been observed in sieve tube elements of infected sugarcane. They vary in size from 80 to 800 nm, do not have a wall cell and their membrane is approximately 10 nm thick (Maramorosch et al. 1975).

The disease can be detected by PCR-based methods (Wongkaew et al. 1997). Detection of Phytoplasma infection can be accomplished in crude tissue extracts by serological methods (ELISA) (Sarindu & Clark 1993).

According to Ritthinson (2004), the 210 bp phytoplasma DNA fragment associated with sugarcane white leaf disease was detected in 12 out of 69 species of leathoppers: Balclutha rubrostriata, Balclutha sp., Bhatia olivacea, Exitianus indicus, Macrosteles strifrons, Matsumuratettix hiroglyphicus, Recilia sp., Recilia
distinctus, Recilia dorsalis, Thaia oryzivora, Xestocephalus sp. and Yamatotettix flavovittatus.

Matsumuratettix hiroglyphicus and Y. flavovittatus are able to transmit the disease to healthy plants (Chen 1978, Ritthison 2004).

2.5. References

3. Diagnostic Images

Symptoms of white leaf disease of sugarcane (For permission to reproduce image email ponragdee@kknet.co.th).

**Host Symptoms:** Weerapol Ponragdee
Department of Agriculture, Thailand

Symptoms of white leaf disease of sugarcane (For permission to reproduce image email ponragdee@kknet.co.th).

**Host Symptoms:** Weerapol Ponragdee
Department of Agriculture, Thailand

Infected sugarcane plant (For permission to reproduce image email ratana.sd@psu.ac.th).

**Host symptoms - leaves:** Dr Ratana Sdooodee
Prince of Songkla University

Symptoms on leaves (For permission to reproduce image email rungsi@doa.go.th).

**Host symptoms - leaves:** Rungsi Charaensatatpon (Ministry of Agriculture and Co-operative 2002)
Department of Agriculture, Thailand

Symptoms on leaves.

**Host symptoms - leaves:** J.R. Liberato
DPI&F

Symptoms on leaves.

**Host symptoms - leaves:** J.R. Liberato
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