

## ABSTRACT

EPIDEMIOLOGY, HOST-PATHOGEN RELATIONSHIPS AND CONTROL  
OF YELLOW SPOT DISEASE IN SUGARCANE

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The epidemiology of Yellow spot disease, YSD (caused by Mycovellosiella koepkei) in sugarcane, the host-pathogen interaction and disease control were studied from 1985 - 1988. Rainfall and relative humidity were found to be the most influential factors in the development of YSD, while windspeed, air temperature and leaf wetness seemed to play less important roles.

The levels of reducing sugars in heavily infected plant and ratoon canes were higher than canes with lower infection. Brix, juice purity and pol per cent cane were lower in canes with high infection and the TC/TS ratios of plant and ratoon canes were 2 - 10 per cent and 3 - 7 per cent higher respectively than canes with lower infection.

Acid and neutral invertase (AI and NI) activities in heavily infected plant and ratoon canes of variety B41227 were higher than canes with lower infection. Varieties resistant to YSD had significantly lower AI and NI activities in both the leaves and stalks compared with moderately resistant and susceptible varieties. It is suggested that the increase in invertase

activity in infected canes may be due to the production of auxins or related compounds by the fungus or the host plant and/or a decrease in the level of carbohydrates in the metabolic compartment of the plant.

Two and three applications of the fungicide Thiophanate Methyl reduced the level of YSD infection by 35 per cent resulting in estimated profits ranging from \$T97. - 570./ha. It is suggested that the control of YSD should be an integrated one, with the long term goal being the use of resistant varieties, but pending the selection of these varieties, the disease should be managed by cultural methods and appropriate fungicide sprays.