

# SCLEROTIAL SETT ROT DISEASE

## INTRODUCTION

Sclerotial sett rot (SSR) was first identified in 2016 at the SRA Woodford Pathology Farm on sugarcane setts sent for disease resistance screening trials. Up until now, it has not been reported anywhere else in the world. SSR affects sett germination and kills young plants (Bhuiyan *et al.* 2019). It is unclear whether SSR is present in commercial sugarcane farming systems in Australia.

## CAUSAL ORGANISM

SSR is caused by a soilborne fungus *Athelia rolfsii* (commonly known as *Sclerotium rolfsii*).

## SYMPTOMS

The external surface of the setts can exhibit reddish patchy lesions. Internal tissues are discoloured pale-red to red-and-white. Mycelial growth is common in the pithy tissues and on the cut end of the setts. Infection spreads through the vascular bundles, central pithy tissue and can extend through the nodes. This disease can be confused with two soilborne diseases of sugarcane, pineapple sett rot (*Ceratocystis paradoxa*) and fusarium sett rot (*Fusarium moniliforme*), as some of the symptoms such as reddening of internal tissue, discoloration of external internode surfaces are in common in those two diseases. The presence of white mycelium or sclerotia on and around the affected area and soil surface can be an indication of SSR infection.



Figure 1: External symptoms on sett: (A) red patchy lesions shown on the exterior of infected sugarcane setts (top) compared to healthy setts with no similar lesions (bottom), (B) a healthy sett, and (C) an infected sett



Figure 2: Internal symptoms of SSR. Arrows on the photo (right) indicate the presence of white mycelium of the pathogen

White mycelial growth can be seen on the soil surface adjacent to diseased setts. The fungal mycelia possess a distinctive coarse cobweb-like appearance. Small whitish to brown sclerotia (grain-like structures) may be present within the mycelial mat.

Symptoms on young plants include water-soaked to light brown lesions on the base of the plant, production of sclerotia (grain-like structures) and white mycelia in and around the lesions and on dead young plants.

## YIELD LOSS

SSR causes germination failure and death of young plants. In experiments conducted at SRA Woodford, germination of healthy cane was five-fold higher than in SSR inoculated setts.

## DIAGNOSIS

SSR can be diagnosed by white mycelial growth both inside, and at the cut ends of the billets. The presence of coarse white mycelia, along with sclerotia on the soil surface or on dead plant tissue, is also a common feature.

## FURTHER INFORMATION

Information is currently being sought on whether SSR has been observed in commercial sugarcane crops in the Australian sugar industry.

If you observe SSR like symptoms, please email Shamsul Bhuiyan via the contact details listed below.

## CONTACT INFORMATION

**Shamsul Bhuiyan**

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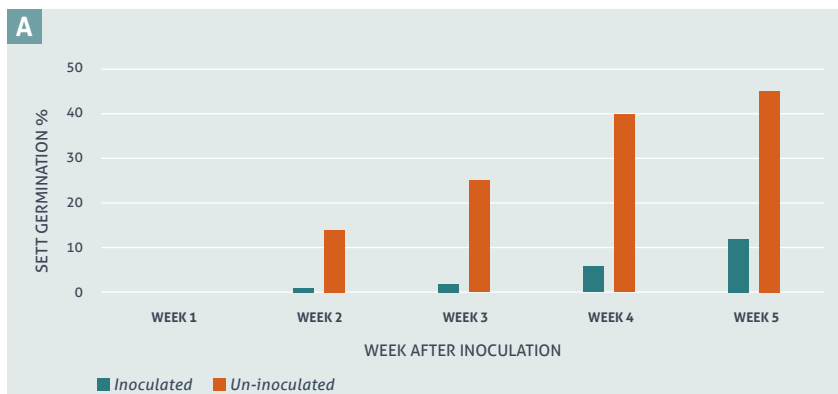
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## FURTHER READING

Bhuiyan SA, Wickramasinghe P, Mudge SR, Adhikari P and Magarey RC (2019) *Athelia rolfsii* causes sett rots and germination failure in sugarcane (*Saccharum* hybrid): pathogenicity and symptomatology. *Australasian Plant Pathology*, 48:473–483



(Figure 3) White, coarse mycelial growth on agar plates (top left) and in trays on potting media (top right). Orange arrows indicate grain-like sclerotia, (inset) sclerotia (grain-like structures) within mycelial web. Infected young plants in the field (bottom left) young plant covered with white mycelia (bottom right), lesions and sclerotia are indicated by the arrows, (inset) white sclerotia at base of the young plant.



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