

Research Paper :

Chemical Control of Sugarcane Smut Through Sett Treatment with Fungicides

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SUMMARY

Smut disease caused by *Ustilago scitamineae* is a dreadful disease of sugarcane and is endemic in most of the tropical regions. Sett treatment with triademifon (0.1%) followed by propiconazole (0.1%) for different periods 2h and 4h had shown radical reduction in smut incidence. There was slight smut incidence with triademifon or propiconazole for 2 h dip but with 4 h there was no smut incidence. Sett treatment with fungicide did not exhibit any influence on germination and shoot production. Hence, sett dip with triademifon (0.1%) or propiconazole (0.1%) for 2h can be recommended for an effective management of sett transmitted sugarcane smut.

Key words :

Sugarcane, Smut,
Ustilago
scitamineae,
Fungicides,
Management, Sett
treatment

Culmicolous smut (*Ustilago scitamineae*) is cosmopolitan in distribution and is one of the most dreadful disease of sugarcane. The disease was first reported from Natal in South Africa around 1877 according to a reports of the Victoria planters association. It is quite difficult to make a precise assessment of the economic importance of smut, since most estimates of yield loss are based on observation and experience rather than rigorous experimentation. In addition to cane tonnage losses, smut also appears to reduce cane quality. However, loss may be quite severe in susceptible varieties under conditions suitable for disease development. Rao *et al.* (1985) reported loss in yield (68 to 80%) and juice quality (32%) in susceptible varieties which was further increased in ratoons. The decrease in cane yields is due to decreased number of millable canes and size of cane girth. Smut epidemics in various countries suggest that disease severity is associated with hot dry climates where crop may experience water stress (Singh *et al.*, 1988). Padmanabhan *et al.* (1987) stated a negative and significant correlation existed between smut incidence and yield. Growing resistant varieties is the best method to curtail the disease. Breeding and selection process in sugarcane are cumbersome. Though hot water treatment is suggested for the control of smut disease. Bailey (1983) found that sett treatment for 2h at 50° C with 500 ppm of triademifon had a significantly lower rate of infection in the resultant crop than did the equivalent controls.

This was at variance to observations of Goyal *et al.* (1983) who felt that hot water treatment could overcome infection but tedious process makes farmer difficult to do on their own. Hence, a study was made to evaluate sett treatment with fungicides to control sett borne infection of smut during these consecutive years (2002-03 to 2004-05).

MATERIALS AND METHODS

A field experiment was conducted at Regional Sugarcane and Rice Research Station, Rudrur, Nizamabad district in Andhra Pradesh during 2002-2003, 2003-2004 and 2004 – 2005. Treatments with six fungicides *viz.*, 0.15% carbendazim, 0.1 % triademifon, 0.1% propiconazole, 0.2% Hexaconazole, 0.1% Difenconazole and 0.1% carboxin were tried and untreated treatment control. Fresh smut whips were collected from smut affected fields of susceptible varieties in and around fields for use as inoculum. After shade drying, the teliospores were gently scrapped and thoroughly sieved. The germination of the teliospores on plain agar plates was found to be 90 per cent at the time of inoculation. Two budded setts of the sugarcane Co 6907 were artificially inoculated by soaking them in viable smut spore suspension of concentration (1x10⁶ spores/ml) for 30 min and were incubated in moist gunny bags for 24 h. A sticker (Indtron) @ 0.5 ml/l was added to the smut spore suspension for equal distribution of spores and to make the solution more tenacious (Shah *et al.*, 1997). The inoculated setts were then

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