

## Influence of organic amendments on sugarcane set rot development

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### SUMMARY

Set rot disease of sugarcane caused by an ascomycetous fungus *Ceratocystis paradoxa* Moreau, is a major cause for poor germination in the sugarcane growing areas. Narrow based approach for management may not be a feasible affair to control any plant disease. Hence, it is imminent to develop strategies involving different management practices including ecofriendly, environmentally safe ones. A study was taken up to assess the influence of different organic materials on the set rot disease development. Application of neem cake helped for significantly higher germination (68.53%) than all other amendments. Neem cake amended treatment recorded significantly low set rot (27.83%) followed by vermicompost (42.72%), pressmud (43.45%) and FYM (46.40%) which recorded *at par* development of set rot.

**Key words :** Sugarcane, *Ceratocystis paradoxa*, Set rot disease, FYM, Neem cake.

Set rot, a soil borne fungus disease has gained importance as it primarily affects bud germination, a vital step of crop growth and vigour resulting in poor crop stand (Wismer, 1951). The set rot disease of sugarcane caused by an ascomycetous fungus *Ceratocystis paradoxa* (De Seynes) Moreau, was first studied exhaustively by De Seynes (1886) in France. The disease is a major cause for poor germination in the sugarcane growing areas. Necessary research involving field and laboratory experiments has been conducted elucidating the means to manage the disease. However, narrow based approach for management may not be a feasible affair to control any plant disease. Hence, it is imminent to develop strategies involving different management practices including ecofriendly, environmentally safe ones. One such management practice being usage of organic amendments that not only enhance bioflora in the soil but also aid in reducing the harmful disease causing fungi by way of either parasitism, competition or antagonism. Hence, a study was taken up to assess the influence of different organic materials on the set rot disease development.

### MATERIALS AND METHODS

A pot culture experiment was conducted to find out the efficacy of soil amendments on set rot of sugarcane. Four organic amendments *viz.*, FYM (50 g/kg of soil), Press mud (50 g/kg of soil), Neem cake (7.5 g/kg of soil) and Vermi compost (12.5g/kg of soil) were added to each pot ten days before planting and mixed thoroughly. Then the inoculum of *Ceratocystis paradoxa* was thoroughly mixed with the soil. Three two budded sets of Co-7804 were planted in each pot along with control and five

replications were maintained in each treatment. Germination and seff rot per cent were recorded and analysed statistically.

### RESULTS AND DISCUSSION

Amending soil with organic materials from different sources is known to affect the survivability of the pathogen in the soil. All organic amended treatments exhibited higher set germination (52.17 to 68.53%) over control (Table 1). Application of neem cake helped for significantly higher germination (68.53%) than all other amendments.

**Table 1 : Effect of organic amendments on sett rot development**

Amendments	Germination per cent	Sett rot per cent
Farm yard manure (FYM) @ 50 g/kg soil	52.17 (46.22)*	46.40 (42.94)*
Pressmud (PM) @ 50 g/kg soil	54.83 (47.75)	43.45 (41.21)
Neem cake (NC) @ 7.5 g/kg soil	68.53 (55.86)	27.83 (31.82)
Vermicompost (VC) @ 12.5 g/kg soil	56.43 (48.68)	42.72 (40.80)
Control	17.60 (24.80)	80.93 (64.04)
Mean	49.91	48.27
S.E. <sub>±</sub>	0.88	0.84
C.D. (P=0.01)	3.81	3.65

\*Figures in the parenthesis are arsine-transformed values.