

## BP04

### DISEASE MANAGEMENT THROUGH HOST RESISTANCE IN SUGARCANE: SCREENING METHODOLOGIES DEVELOPED FOR DIFFERENT DISEASES IN INDIA

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Fungal diseases such as red rot, smut, wilt, pokkah boeng and rust and non-fungal diseases like grassy shoot, yellow leaf disease (YLD) and mosaic cause substantial losses to productivity in sugarcane in India. To successfully manage these diseases, host resistance plays a vital role hence screening techniques have been developed to select resistant clones in the germplasm and in the progenies. Red rot caused by *Colletotrichum falcatum* is a destructive pathogen and currently varieties with red rot resistance alone are recommended for commercial cultivation. Sugarcane progenies are screened for red rot resistance during different stages of selection process both under field conditions as well as under controlled conditions. Evaluation of red rot resistance by screening method provides basis for recommending elite sugarcane varieties for commercial release in the country. To assess red rot resistance at very early stages of varietal improvement programme, the clones are tested under controlled conditions from seedling stage onwards. This rapid screening methodology ensures screening of large number of progenies every year at the Institute. Resistance to smut in the progenies is assessed under field conditions by following standard sett dip inoculation method of the pathogen. Screening of sugarcane varieties for wilt resistance is being done at few centres in the country where wilt is a serious disease. Recently screening the clones for YLD resistance has been adopted in all the sugarcane research stations using 0-5 rating scale developed by the institute. Since diseases such as brown rust and pokkah boeng have become major constraints in few states, screening methodologies were standardized to screen the clones for resistance to these diseases. Overall, development of

disease resistant varieties has been fully supported by screening programmes in different sugarcane research stations in the country and ensures release of commercial varieties with disease resistance to major diseases.