

THE EFFECTS OF SOME ENVIRONMENTAL FACTORS ON INFECTION  
AND INCIDENCE OF CULMICOLOUS SMUT DISEASE OF SUGARCANE  
CAUSED BY USTILAGO SCITAMINEA SYDOW, AND ITS CONTROL.

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A B S T R A C T.

Preliminary studies have been conducted on the effects of certain environmental factors including source of planting material, moisture, temperature, soil types and irrigation on the incidence and infection of sugarcane smut disease, which presently is the most economically important sugarcane disease in Kenya. The studies also evaluated the effect of five chemical fungicides in controlling smut disease of sugarcane.

These studies revealed that planting materials from four different localities within the cane growing areas in Western Kenya did not produce differential effect on sugarcane variety CO.421, known to be resistant to the smut disease in Kenya. The studies also indicated that for the sandy loam soils at the National Sugar Research Station, Kibos, the Field capacity moisture level which in this case was 16% was most favourable for smut infection of variety CO.419, whereas the optimum temperature for infection of the same variety during three days incubation period ranged between 25<sup>0</sup>C. to 26<sup>0</sup>C.

The studies further revealed that seven different soil types evaluated did not show differential effects on sugarcane smut infection. Similarly the studies indicated that irrigation did not produce significant effect on the incidence of sugarcane smut disease.

The studies also showed that soil application of 0.15 grams/litre Benlate and 0.60 grams/litre Plantvax fungicides were most effective in the control of systemic smut disease of sugarcane variety H.46-2404, rated to be highly susceptible to smut in

Kenya. However, Benlate fungicide displayed more residual effect than Plantvax. In contrast Aretan, Sicarol and Vitavax fungicides were not effective in control of systemic infection of the same sugarcane variety.