

## ABSTRACT

### **Control of Black Rot Disease in Cabbage by Integration of Mulching, Pruning and Hot Water Treatment of Seeds**

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Black rot disease of cabbage caused by *Xanthomonas campestris* pv. *campestris* has been a major hindering factor to cabbage production in Kisii County, Kenya. The conventional technique for controlling this disease has been the use of chemicals. However, this method of control has not been effective as the disease is seed borne. In addition, most chemicals pollute the environment and make it uncondusive for the survival of other important organisms such as decomposers. In this paper, the integration of hot water treatment of seeds, mulching, pruning and plant debris management was considered as an approach that can effectively manage this disease. To achieve this objective, seeds of Gloria Hybrid cabbage were inoculated with a bacterial suspension of *X. campestris* pv. *campestris* isolated from leaf segments obtained from plant leaves with characteristics symptoms of black rot disease. A portion of the inoculated seeds were treated with hot water at 50oC for 25 minutes and later planted in the field to evaluate the effects of mulching, pruning and plant debris management on black rot disease. Another portion of the inoculated seeds were not treated with hot water and were planted to serve as a control. Disease was scored on a scale of 1–9 based on the length of the V-shaped lesions developed on the margin of plant leaves. The results obtained show that integration of hot water treatment of seeds, mulching, pruning and plant debris management led to 76.1% less black rot disease and a 78.3% increase in marketable yields. Hence such treatment is recommended as the best approach to manage black rot disease of cabbage in the field.

**Keywords:** disease score, Gloria Hybrid, integration, severity, significant difference, *Xanthomonas campestris*