

**Karuri, H.W.**, Amata, R., Amugune, C.N. and Waturu, C.N. 2013. Effect of Bt cotton expressing Cry1Ac and Cry2Ab2 protein on soil nematode community assemblages in Mwea, Kenya. *Journal of Animal and Plant Sciences*, 19:2864-2879.

### **ABSTRACT**

**Objective:** The nematode community structure in soil cultivated with Bt cotton (containing Cry1Ac and Cry2Ab2 protein), isoline (non Bt cotton) and HART 89M (non Bt cotton) was evaluated in a field trial at Ndomba in the Central Province of Kenya.

**Methods and results:** The experiment was laid out in a completely randomized block design. Soil was collected for two seasons at 0, 30, 60, 90, 120, 150 and 180 days after planting (DAP). Presence of Bt protein in roots and soil was determined using ELISA and insect bioassays. Nematodes were extracted from soil using centrifugal-floatation method and identified to genus level using a compound microscope. ELISA analysis of soil samples indicated that Bt protein was present at 150 and 180 days after planting. Bacteriovorous nematodes were present in significantly ( $P < 0.05$ ) higher numbers in the Bt cotton (46.9%) than in isoline (42.1%) plots.

**Conclusion and application of findings:** Cry1Ac and Cry2Ab2 protein in Bt cotton (06Z604D) does not have a direct effect on nematode diversity. The results provide important biosafety data that will be useful in pre- and post release monitoring of potential negative impacts of Bt cotton cultivation in Kenya.

**Keywords:** Risk assessment, Renyi diversity, Bt cotton