

# Effect of Transgenic Bt-cotton Variety Bollgard II® 06Z604D Containing cry1Ac and cry2Ab2 Genes on Arthropod Diversity in Confined Field Trials at KARI Mwea, Kenya

*Kambo, C. M., Waturu, C. N., Wessels, W., Wepukhulu, S. B., Njinju, S. M., Njenga, G. K., Kariuki, J. N., Karichu, P. M. and Mureithi, J. M.*

*Kenya Agricultural Research Institute, P. O. Box 298-10300, Kerugoya*

*E-mail: [karimwea@yahoo.com](mailto:karimwea@yahoo.com)*

## **Abstract**

---

A trial to establish effect of Bt-cotton variety, BG II 06Z604D on arthropod diversity was conducted in a confined field at KARI Mwea during 2006/07 cotton growing season. The experiment had nine treatments arranged in a randomized complete block design with four replicates. Three out of the nine experimental plots were sprayed six times to control general sucking pests; three plots were sprayed six times for all arthropod pests and the remaining three received no pesticide treatment. The beneficial arthropod species considered in the current study included the ladybird beetles, parasitic wasp, hoverfly, honeybee, attendant ant, predatory mite and the spider on the other hand to assess the effect of transgenic Bt-cotton on general arthropod species diversity, water, sticky and pitfall traps were set up in four stations across the field, each made up of 3 traps. The results obtained from the trial revealed that the plots sprayed with pesticides to control sucking and general arthropod pests had a negative effect on the beneficial arthropod populations as shown by significantly lower mean arthropod counts in the sprayed plots. However, significantly high arthropod populations were recorded on unsprayed Bt-cotton varieties as compared to the treated isolines and the commercial variety, HART 89M which recorded relatively low populations of beneficial arthropods. The results obtained from this study confirm that transgenic Bt-cotton enhanced population growth of non-target beneficial arthropods and had no detrimental effect on general arthropod species diversity and the environment.

---

**Key words:** Transgenic Bt-cotton, confined field trial, arthropod diversity