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Occurrence of *Fusarium* species and associated T2-toxin in Kenyan wheat

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ABSTRACT

Survey covering 120 wheat fields was conduc- ted in three wheat-growing districts of Kenya during the 2008 cropping season to determine the incidence of *Fusarium* head blight (FHB) and T2-toxin contamination in grain. FHB incidence was determined as the number of blighted ears per 10 m^2. Information gathered included wheat production practices, rainfall and temperature data. Fungal pathogens were isolated from wheat stems, heads, straw, grains and soil and identified based on cultural and morphological characteristics. Wheat grain samples were analyzed for T2-toxin by competitive Enzyme Linked Immunosorbent Assay (ELISA). High FHB incidences of up to 88% were recorded. Fungal genera isolated included *Fusarium*, *Epicoccum, Trichoderma*, *Alternaria* and *Penicilium.* Wheat plant parts with high infection with *Alternaria* and *Epicoccum* had corresponding low levels of *Fusarium* spp. Whereas *Fusarium* spp. were the most common fungal pathogens in stems, heads and soil, *Epicoccum* was frequently isolated from straw and grains. *Fusarium* speciesiso- lated included *F. poae*, *F. graminearum*, *F. stil- boides*, *F. verticilloides*, *F. fusarioides*, *F. tricinc- tum* and *F. heterosporum* with *F. poae* and *F. graminearum* accounting for approximately 40% of all *Fusarium* infections. T-2 toxin was de- tected in all the grain samples and varied from 3 to 22 ppb. The study showed that FHB and T2- toxin are prevalent in the study districts and the high diversity of *Fusarium* species implies a challenge in FHB management as well as a risk of chronic T2-toxin exposure to humans and livestock.

Keywords: Fusarium; Head Blight; Mycotoxins; T-2