ABSTRACT

Effect of Cropping Systems on Accumulation of *Fusarium* Head Blight of Wheat Inocula in Crop Residues and Soils

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Fusarium head blight (FHB) is an economically important disease of wheat, which causes reduction in grain yield both quantitatively through reduced seed weight and qualitatively by contaminating grains with mycotoxins. The effect of cropping systems on accumulation of FHB inocula in crop residues and soil was assessed at hard dough stage of wheat during the 2013 cropping season in three agro-ecological zones in Narok County, Kenya. A semi structured questionnaire was used to obtain information on wheat production practices. Fusarium spp. were isolated from crop residues and top soil, while incidence and severity of FHB were assessed at mid-anthesis. Majority of the wheat farmers were small scale producers who rotated wheat with maize, grew the two crops in adjacent fields, grew wheat in consecutive years, left wheat residues as standing hay for livestock and practiced simple land preparation methods. Prevalence of FHB was 100%, while mean incidence and severity were 20.7 and 28.4%, respectively. The most frequently isolated Fusarium spp. were F. chlamydosporum and F. graminearum in crop residues and F. oxysporum and F. proliferatum in soil. The incidence of Fusarium spp. in soil and crop residues was highly correlated to FHB incidence but not to severity of the disease. Wheat production practices affect the survival of Fusarium spp. in soil and crop residues between cropping seasons. It is therefore, recommended that after harvesting, wheat straw and maize stover should be removed from the field or be incorporated into the soil through tillage to allow faster decomposition. Inclusion of maize as a rotation crop in wheat production should also be avoided.

Key words: Cropping systems, crop residues, *Fusarium* head blight, soil, wheat