

The need to enhance food production and the efforts by stakeholders to introduce new farming innovations in addition to enhancement of agricultural extension services in farming areas of Kenya is largely under reported. This study was undertaken at Yatta Division of Kitui County to assess new maize farming technologies, diffusion and adoption by farmers in Yatta Division. Specific objectives were to identify maize farming technologies that exist in Yatta, to identify factors determining observed preferences to improved maize seed varieties, attitudes related to new farming innovations and to analyze challenges that maize farmers face. Improved maize production in changing climatic conditions requires innovative interventions to mitigate the effects of such conditions. Data was obtained from 96 randomly selected maize farmers through the use of structured questionnaires. Data analysis reveals traditional maize farming methods to be the most dominant (63.5%). Their adoption of improved maize farming innovations was low with the use of improved seed being the most widely adopted (20.8%). Non-adoption due to farm size, soil fertility management, extension contact and labor saving technologies were statistically significant at $p < 0.05$ an indication that challenges present constraining factors to adoption of maize farming innovations and the hypothesis that maize farmers in Yatta do not face challenges was therefore rejected. Chi-Square distribution reveal that there were significant differences in the levels of farm size (Chi-square test: $df=2$, $p < 0.05$ (4.45957), soil fertility management (Chi-square test: $df=1$, $p < 0.05$ (3.83787), extension contact (Chi-square test: $df=3$, $p < 0.05$ (7.82453) and by labor saving technologies (Chi-square test: $df=3$, $p < 0.05$ (7.92576) among non-adopters and adopters in relation to adoption of maize farming innovations. There were no significant differences in the levels of land tenure (Chi-square test: $df=1$, $p < 0.05$ (0.10005733) and by education (Chi-square test: $df=1$, $p < 0.05$ (1.26331). A five-point Likert-type scale used to measure attitude to adoption revealed that superiority of hybrid maize seed over local seed variety recorded the highest positive response (56) while the ease of process of adoption attracted the least positive response (40). Chi-square test on specific attitude to adoption reveal that there was no significant differences between positive respondents in respect to hybrid seed and ease of adoption (2.20905), extension contact and ease of adoption (0.1572993). The study points out that the tendency of many studies to consider innovation adoption in dichotomous terms (adoption Inon-adoption) may not be appropriate in many cases where the actual decisions are defined over a more continuous range. More attention needs to be given to the socio-cultural and institutional environment in areas studied so that their interrelation with economic factors affecting adoption can be inferred.