ABSTRACT

Storage Conditions and Postharvest Practices Lead to Aflatoxin Contamination in Maize in Two Counties (Makueni And Baringo) in Kenya

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Aflatoxins are known to cause devastating acute and chronic effects in humans and animals. The objective of the study was to determine the influence of postharvest practices and storage conditions on aflatoxin contamination in maize in two counties. Aflatoxin levels in 144 maize samples from different maize storage conditions were determined. While sampling, a structured questionnaire was also administered to evaluate farmer's postharvest practices. Makueni County had the highest percentage of aflatoxin positive samples with up to 174 ppb attributed to the long storage under unfavourable conditions. On the other hand, Baringo County had lower positivity associated with the harvesting season at the time of sample collection. The type of storage condition had a significant effect on the extent of contamination and accounted for 11% of the variation ($R^2 = 0.11$). Gunny bags were the most common type of storage condition and had the highest level of contamination in both the counties. Metallic bins had the lowest level of contamination. Aflatoxin G1 and G2 were predominant in samples from Baringo County, while aflatoxin B1 and B2 were predominant in samples from Makueni County. The study concluded that the type of storage condition significantly contributes to the aflatoxin contamination in the stored maize. Proper drying of maize to the recommended moisture content and subsequent storage in hermetic structures will reduce the cases of aflatoxin contamination.

Keywords: aflatoxin, storage conditions, postharvest practices, maize, Kenya