**Abstract**

Mycotoxins are metabolites of fungal contamination of animal feeds as a result of poor feeds storage. These mycotoxins are subsequently excreted in milk when dairy animals consume such feeds and therefore posing a safety risk of public health concern. The aim of this study was to conduct a risk assessment in milk from small-scale farms that form the informal dairy sub-value chains in rural system in Olenguruone and peri-urban system in Bahati, both in Nakuru County, by determining the prevalence and quantifying levels of mycotoxins in animal feeds and milk. A total of 74 animal feed samples from actors in informal dairy value chain and 120 milk samples from individual cows were simultaneously collected. Feed samples were analyzed for Aflatoxin B1 (AFB1)and Deoxynivalenol (DON) while milk samples were analyzed for Aflatoxin M1 (AFM1). Mycotoxin concentration levels was determined using commercial enzyme linked immune sorbent assay (ELISA). Results showed that 56% of all animal feeds had AFB1 above European Union (EU) limits of 5µg/kg while 63% had DON. Levels of AFB1and DON in animals feeds was significantly (P<0.05) high and was determined by the type of feed which was either concentrate or forage and the source of the feed which was either commercial or farm-sourced. The farm-sourced concentrates being used in peri-urban reported the highest mean for AFB1 of 92.20±50.43µg/kg and DON of 106.26±58.46µg/kg contamination. Forages used in rural dairy system had the lowest mean AFB1 of 4.36±6.22µg/kg and DON of 11.85±21.22µg/kg contamination below the EU limits. The results also showed that 25% of all milk samples had AFM1 above EU limits of 0.05µg/L. In the peri-urban system, 68% at production, 29% milk transporters, 40% cooperatives and 17% milk bars exceeded the EU limits. Therefore there was a higher public health risk of AFM1 in peri-urban system.The results obtained from this study indicate that the peri-urban dairy system which is intensive faces the challenge of quality feeds and one contributing factor is the on-farm production and handling of animal feeds.

**Key words:**

Animal feeds, Milk, Aflatoxin B1, Deoxynivalenol and Aflatoxin M1