Costs of aflatoxins in Kenyan dairy value chain

Daniel Senerwa1,2, Nadhem Mtimet1, Johanna Lindahl1, Erastus Kangethe2 and Delia Grace1

1International Livestock Research Institute (ILRI), Nairobi, P.O. Box 30907, Nairobi, Kenya.
2University of Nairobi, Nairobi, P.O.Box 30197, Nairobi, Kenya.

Introduction

Kenya’s dairy industry contributes to 14% of agricultural GDP and 3.5% of the total GDP. Aspergillus fungi contaminate crops before harvest or postharvest and produce aflatoxins. Aflatoxin contaminated food/feed cause direct economic losses (when the food/feed is unfit for consumption) and indirect economic losses due to acute and chronic aflatoxicosis in humans and dairy cattle.

Several studies have reported a high prevalence of aflatoxins in maize, dairy feeds and milk in Kenya. The overall goal of the present study is to assess the economic costs of aflatoxins in Kenyan dairy value chain.

Methodology

Figure 1. Aflatoxin contamination pathway (source: authors)

Site selection

Five study sites were selected from four agro-ecological zones: Kwale county (sub-humid), Isiolo county (semi-arid), Tharaka Nithi (humid), Kisi (temperate), and Bungoma (temperate). A questionnaire was administered to dairy farmers, milk traders, milk consumers, feed traders, and feed manufacturers. Samples of milk, foods and feeds were collected. The samples are being analysed for aflatoxins M1, B1, and total aflatoxin using ELISA and HPLC. The total aflatoxin exposure per day in humans and dairy cattle will be used to calculate aflatoxin costs. The aflatoxin human health costs will be calculated using a formulae of Rico-Sole (2012).

Conclusion

There is a need to assess the costs of aflatoxins in Kenyan dairy value chain and suggest economically viable and socially acceptable mitigation strategies that could be followed to reduce aflatoxin contamination of foods and feeds.

The results could help policymakers and the Kenya Dairy board to implement strategies that allows the control of aflatoxin contamination in milk.