

Aflatoxin risk assessment in the dairy and poultry food chains in Ethiopia

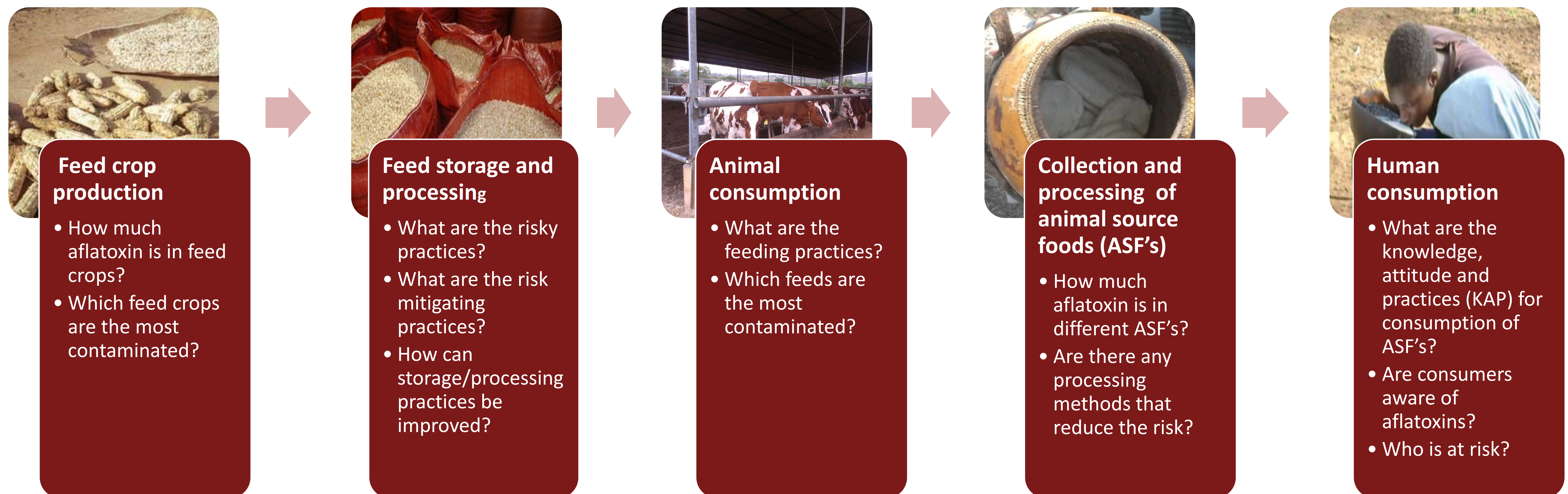
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Background and objectives:

The prevalence and concentration of aflatoxins in food chains in Ethiopia are not well studied. Dairy and poultry products may contain aflatoxins that pose a threat to human health when consumed. In addition, contamination of animal feeds with aflatoxins has negative effects on poultry including reduction in weight gain and decreased egg production.

Our objectives are to 1) study the prevalence and concentration of aflatoxins in animal feeds, dairy and poultry in representative regions of Ethiopia, and 2) to identify approaches to mitigate the risk of exposure to aflatoxins in humans and animals using locally available methods.

Our research questions along the food chains:



Our research approach: risk assessment for human and animal health



Improved detection methods:

- **Enzyme-Linked Immunosorbent Assay (ELISA)**
 - All samples will be screened with ELISA
 - The ELISA determines quantitatively at the level of ng per liter (ppt) the aflatoxin concentration in samples
 - Further analysis and quantification of samples will be done using HPLC to compare the methods' performance
- **High Performance Liquid Chromatography (HPLC)**
 - HPLC is one of the most common methods to detect and quantify aflatoxins in food. It has been used jointly with techniques such as UV absorption, fluorescence and mass spectrometry
 - HPLC will be used to identify and quantify the different aflatoxins including B1, B2, G1 and G2 in feeds
- **Easiness of use and cost-effectiveness of techniques will be explored for future routine mycotoxin analysis**

Expected results and outcomes:

- Quantify the level of aflatoxin contamination in the dairy and poultry food chains in different regions of Ethiopia
- Identify regional differences in feed storage methods and risk factors
- Improve storage capacity and condition of animal feed and crops
- Improve livestock productivity by reducing aflatoxin contamination in the feed
- Improve human health by reducing the risk of exposure to aflatoxins in the food chain

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