# Assessment and mitigation of aflatoxin and fumonisin contamination in animal feeds in Rwanda

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## Principal Investigator

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## Objectives

1) Assess and mitigate the prevalence of aflatoxins and fumonisins in animal feeds in Rwanda.
2) Raise awareness among professionals and policy makers in order to better protect consumer health and increase export opportunities.

# Assessment of aflatoxin and fumosin contamination in animal feeds in Rwanda

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## Introduction

- Toxic metabolites produced by a variety of molds (*A. flavus, A. parasiticus)*
- These are among the most carcinogenic substances known
- If feeds are contaminated with aflatoxins, there is carry-over of aflatoxin B1 to aflatoxin M1 in milk
- Lack of data on aflatoxin contamination in feeds in Rwanda

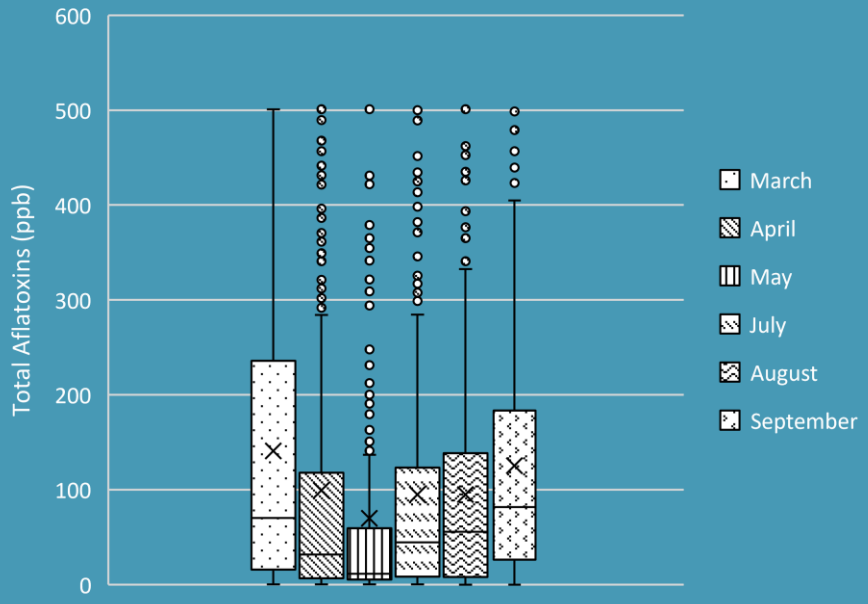
## Methods

- Sample collected from dairy and poultry farms, feed processors, feed vendors, grain mills across the 30 districts of Rwanda
- Samples collected in 6 rounds in March – October 2017
- Method of analysis: ELISA

* While the survey covered feed samples from all 30 districts of Rwanda, it did not include samples of pasture, which is the main feed for cows in Rwanda, and which is not typically contaminated with aflatoxin.

More than 85% of the 1180 samples of feed ingredients and mixed feeds (concentrated feeds and certain byproduct feeds) collected from dairy farmers exceeded the 5 µg/kg AFB1 limit established by the Rwanda Standards Board in cattle feed concentrate. *

Fumonisins did not exceed the EU and U.S. Food and Drug Administration guidance values for feeds for mature poultry set at 20 mg/kg and 30 mg/kg for breeding ruminants and breeding poultry.




Aflatoxin contamination of feeds over time in six rounds of sample collection

## Results

- Mean and median (MD) **aflatoxin** levels were determined

  108.83 µg/kg (MD: 43.65 µg/kg)
  103.81µg/kg (MD: 48.4 µg/kg),
  88.64 µg/kg (MD: 30.90 µg/kg),
  94.95 µg/kg (MD: 70.45 µg/kg)

  for dairy farmers, poultry farmers, feed vendors, and feed processors, respectively.

- Mean and median (MD) **fumonisin** levels were determined

  1.52 mg/kg (MD: 0.71 mg/kg),
  1.21 mg/kg (MD: 0.56 mg/kg),
  1.48 mg/kg (MD: 0.76 mg/kg),
  1.03 mg/kg (MD: 0.47 mg/kg)

  for dairy farmers, poultry farmers, feed vendors, and feed processors, respectively.

- Ninety-two percent of survey participants were unaware of aflatoxins and fumonisins and their adverse effects.