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#EU GREEN WEEK

THE WATER-ENERGY-FOOD NEXUS: BUILDING RESILIENCE TO GLOBAL CHALLENGES

Partner Event

Food and Feed Safety Implications from Climate Change in Albania, the Mycotoxin Contamination

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Introduction:

Climate change makes vulnerable communities more susceptible to extreme weather events, negatively impacting water supplies, agriculture, and key economic sectors. Agriculture remains the leading sector of the Albanian economy, contributing significantly to employment, particularly in rural regions.

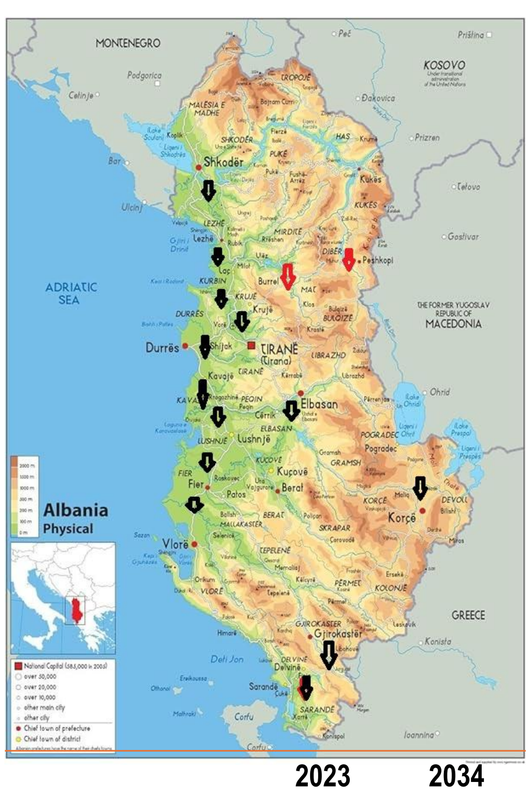
From the first reported incident of maize contamination by aflatoxins (AFs) in 2003, contamination in maize has been regularly recorded throughout Southern Europe, particularly in the Balkan countries. The reports on mycotoxin contamination in Albania date back to 2014.

This study aimed to analyze the AFs contamination in maize intended for feed for and subsequently the aflatoxin M1 in milk produced from local dairy companies, classified as carcinogenic compounds, raising concerns about the increased risk to human health.

Methods:

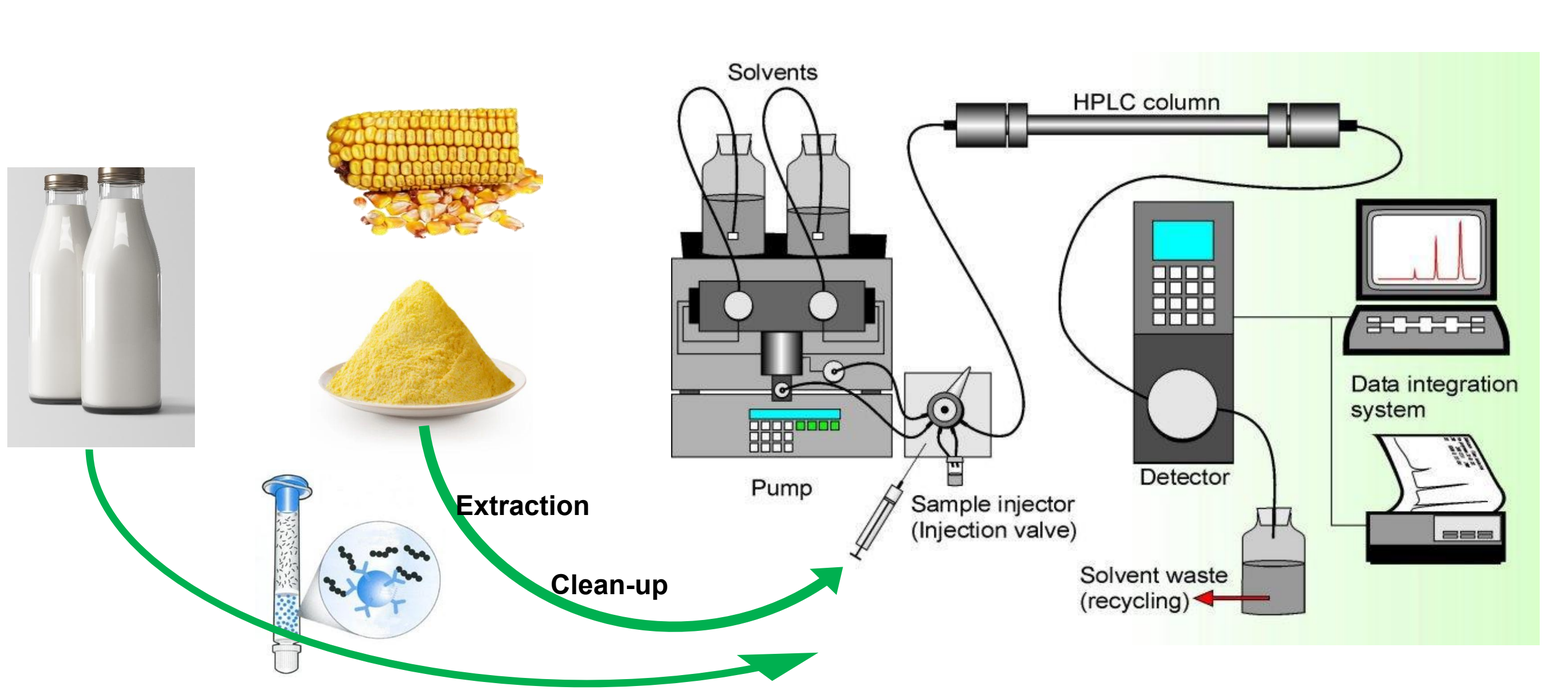
The occurrence of four aflatoxins (AFB1, AFB2, AFG1, and AFG2) in maize harvested in two consecutive seasons, 2023 and 2024, from different regions of the country. Chemical analyses were conducted using liquid chromatography with a fluorescence detector (HPLC-FLD) coupled with a KOBRA Cell derivatization cell. The Aflatoxin (B1+B2+G1+G2) standard (Mix 1) from RomerLabs was used.

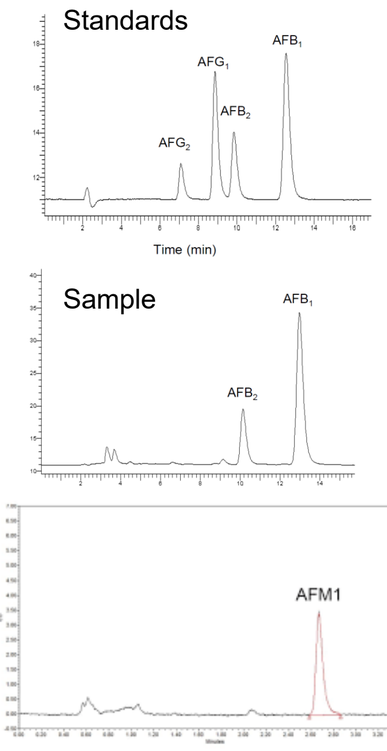
The second analyzed food product was milk produced in the country for the presence of aflatoxin M1. Chemical analyses were performed using HPLC-FLD, and the Aflatoxin M1 standard was obtained from Romer Labs.



	2023	2034
Districts	13	15
Locations	26	>28
Farm size	>400ha	>400ha
Maize samples	63	>63

Figure 1: Maize sampling campaign 2023-2024





Results and Conclusions:

The maximum AFB1 level in two harvesting seasons was 317.25 µg/kg, and incidence 50.77%, mean level of 25.65 µg/kg. That indicates that Afs exceed the EU MRL (20 µg/kg) for feed. Our data highlighting the need for continuous monitoring of aflatoxin in agriculture crps. The occurrence of AFM1 in milk at levels above the EU MRL was identified. The nation's efforts to join the EU align with the ongoing challenge of food and feed safety, emphasize the need for collaboration and collective efforts to address this issue.