

Safe food for a healthier Nepal:

Understanding and responding to mycotoxins as a threat to nutrition and health

Crops, food and feed commodities can be contaminated with fungal toxins (mycotoxins) that harm human and animal health. One of these toxins, aflatoxin (produced by *Aspergillus* fungi), has been estimated to threaten

1/4 of the global food supply,

putting approximately five billion people at risk of adverse health effects globally. Acute exposure to aflatoxin can lead to death. Chronic exposure causes liver cancer and is associated with immune system suppression, nutrient uptake inhibition, and stunting of children's physical and cognitive development. Mycotoxins also form a major non-tariff trade barrier, closing off key export markets as regulations become more stringent.

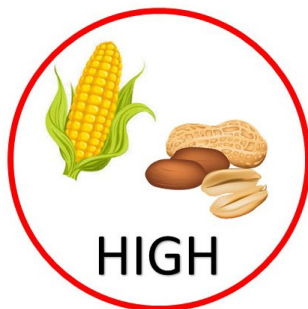


Photo: Inisa Sbrestha analyzing groundnut samples in the newly-established mycotoxin laboratory at NAST.

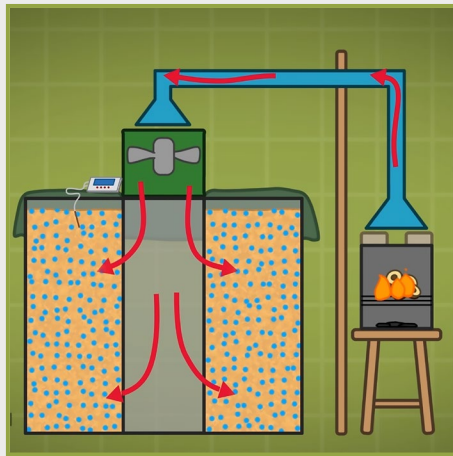
The Kansas State University-led Feed the Future Innovation Lab for the Reduction of Post-Harvest Loss (PHLIL) is completing an aflatoxin assessment in the West, Mid West and Far West terai (lowland) and hill regions.

Early findings show high levels of aflatoxin contamination in some collected maize and groundnut samples; moderate contamination in some chili and soybean samples (still above the maximum allowable limit in many samples); and low levels in wheat-based infant complementary food from farming households. The established limits for aflatoxin, set by Nepal's Department of Food Technology and Quality Control (DFTQC), are 20 parts per billion (ppb) for food and 50 ppb for feed.

Potential for aflatoxin contamination among sampled foods in Nepal



The market survey collected information on socio-economic characteristics, prices and subject qualities of the surveyed commodities, and cleaning, sorting and storage practices from the stores in sample area. The household survey characterized both pre- and post-harvest practices as well knowledge on food safety and proper practices.



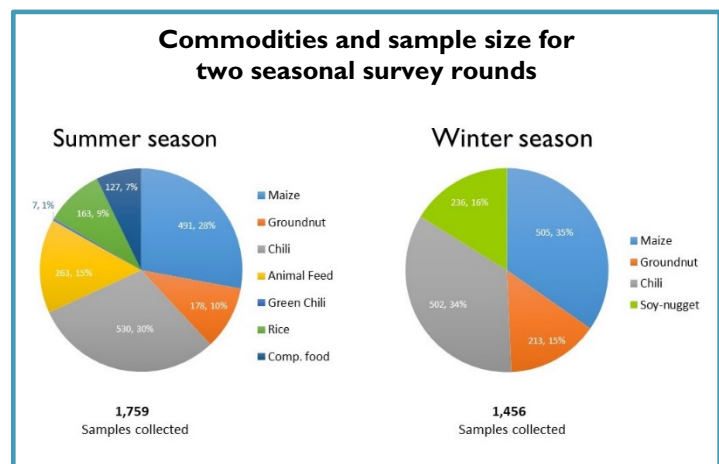
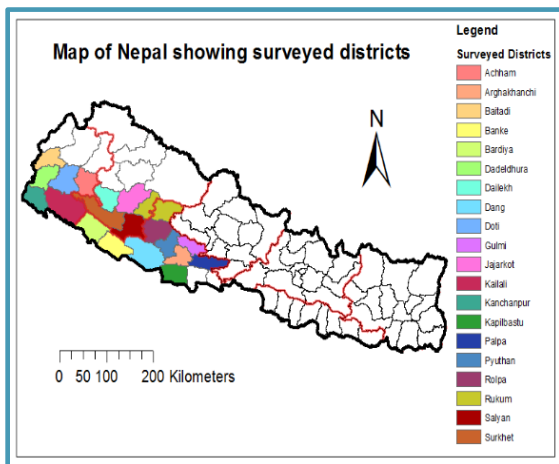
Proper drying and storage of dried food and feed is one of the best ways to prevent or reduce mycotoxin contamination.



Small farm or community-based solar or stove powered dryers paired with hermetic storage can significantly reduce mycotoxin contamination and provide households with safer food for their families.

The PHLIL Nepal Mycotoxin Assessment is infusing the Nepali national system with increased information and capacity, including through the establishment of a mycotoxin research laboratory at the Nepal Academy of Science and Technology (NAST). The Nepal Development Research Institute serves as the project's in-country technical lead and policy conduit. Helen Keller International managed the project survey and brings expertise in farming and nutritional practices.

This project builds from a previous study by the Feed the Future Innovation Lab for Nutrition (NIL), revealing widespread aflatoxin exposure among pregnant women in Banke district. PHLIL and NIL are working together in Banke to better understand aflatoxin health effects and identify potential agriculture-health interventions.



Other project partners include Tribhuvan University, the University of Nebraska-Lincoln (USA), the Institute of Sciences of Food Production (Italy), the Commonwealth Scientific and Industrial Research Organisation (Australia), and the Mars Global Food Safety Center (China). It is supported with funding from the U.S. Agency for International Development as part of Feed the Future, the U.S. Government's global hunger and food security initiative. The project is led by Principal Investigator and PHLIL Director, Dr. Jagger Harvey, Kansas State University.

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