

Mitigation of aflatoxin in maize and groundnuts in Zambia

Donor: United States Agency for International Development (USAID)

Timeframe: 2012 - 2015

Background: At almost 2 million ton/year, maize is the most important staple crop for Zambia, grown by mainly smallholder farmers for home consumption, with some production traded in local markets. Groundnut is an important staple and income-generating crop in Zambia, and constitutes the second most widely grown crop in Eastern Province in Zambia. Groundnuts have untapped potential to raise farmer incomes, particularly for women who traditionally manage the crop.

Project summary: A major aim of the project is to develop a biocontrol product for aflatoxin mitigation. However, limited data is available on aflatoxin prevalence in maize and groundnut in Zambia, and a strong initial focus will be on mapping the incidence of aflatoxin in both crops. At the end of the project, it is anticipated to have a commercial product, aflasafe-Zambia, developed and registered for use in farmer fields. A great emphasis will be placed on developing a viable business plan for production (including manufacturing capacity, marketing and refinement of formulation to optimally use locally available resources), adoption (e.g. through incentivization) and distribution. Raising awareness about aflatoxin and biocontrol is equally essential. As such, the project includes a public information campaign targeting consumers, farmers, extension services and government officials in a phased and focused manner, and will educate communities regarding the dangers of aflatoxin and the means by which to control it. The campaign will also inform food safety and regulatory officials as a means to enable policy environments facilitating the use of biocontrol. Capacity building of national partners features highly in the project, and work related to biocontrol development will be housed in laboratories of national institutions in Zambia.



Dr. Mukanga Mweshi (ZARI) interviewing farmers in Eastern Province during sample collection (photo by T. Dubois)

Objectives

- to quantify the incidence of aflatoxin in maize and groundnut, and to estimate population densities and characterize *Aspergillus flavus* in Eastern Zambia
- to identify, with farmers, the best atoxigenic strains for biocontrol in maize and groundnut
- to commercialize the best atoxigenic strains into a commercial product, and engage in product stewardship and market development
- to nurture national capacity in aflatoxin research and monitoring
- to create awareness on aflatoxin contamination
- to investigate and promote integrated management approaches against pre- and post-harvest aflatoxin contamination, and train farmers in integrated management options
- to evaluate the effectiveness of aflatoxin management in maize and groundnut, with a focus on biocontrol

Outputs

- scale of the aflatoxin problem in maize and groundnut value chains quantified
- biocontrol of aflatoxin to reduce maize and groundnut crop contamination deployed
- technical capacity of national partners, extension services, farmers and other actors in the maize and groundnut value chain enhanced, for better integrated aflatoxin management to minimize contamination, partly using low-cost aflatoxin measuring tools
- benefits of integrated management approaches against pre- and post-harvest aflatoxin contamination determined and promoted
- awareness of stakeholders of the effects of aflatoxin on human and animal health, and procedures to limit aflatoxin contamination and consumption increased

Major partners: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), International Institute of Tropical Agriculture (IITA), National Institute for Scientific and Industrial Research (NISIR), United States Department of Agriculture - Agriculture Research Service (USDA-ARS), Zambia Agriculture Research Institute (ZARI)

Target country: Zambia

Crops: groundnut, maize