

Aflatoxin Control in Maize and Peanuts Project





Background

The realisation of the millennium development goal of reducing by half the number of people suffering from hunger by the year 2015 will require a significant increase in the amount of food grains produced in developing countries. However, food quality and safety issues resulting from aflatoxin contamination present a serious obstacle to improving nutrition, enhancing agricultural production and linking smallholder farmers to markets.

The Food and Agriculture Organisation (FAO) of the United Nations estimates that 25 percent of world food crops are affected while the Center for Disease Control (CDC) estimates that more than 4.5 billion people in the developing world are exposed to aflatoxins. Children below five years remain most vulnerable, with exposure damaging their immunity and causing stunted growth.

4.5 billion... *number of people in developing countries exposed to aflatoxins*

Protecting harvests from deadly fungus

Food and quality issues resulting from aflatoxin contamination present a serious obstacle to improving nutrition, enhancing agricultural productivity and linking smallholder farmers to markets

Aflatoxins are highly toxic, cancer causing fungal metabolites that cause immune-system suppression, growth retardation, liver disease and death in both humans and domestic animals. The main fungi, *Aspergillus flavus* which produce these mycotoxins thrive under favourable conditions on a wide range of foods and feed such as maize and peanuts, and are a world-wide problem. Aflatoxin contamination can occur before harvest when the crop undergoes drought stress due to elevated temperatures at the grain filling stages and when wet conditions occur at harvest periods. Contamination also occurs when there

is insect damage, delayed harvesting and high moisture levels during storage and transportation.

Project goal

The goal of the Aflatoxin Control in Maize and Peanuts Project is to develop and implement holistic strategies to address aflatoxin contamination in maize and peanuts including developing and scaling up biological control technology interventions to improve the health and income of farmers and their families and generate wealth in the crop value chain.



25 percent... amount of world food crops affected by aflatoxin contamination

Implementing the Aflatoxin Control in Maize and Peanuts Project



80-90 percent...
*Amount of reduction in
aflatoxin contamination in
maize and groundnuts from
use of aflasafe in Nigeria*

Facts and figures on aflatoxin

- FAO estimates that 25 percent of the world's food crops are affected by aflatoxin.
- The Center for Disease Control estimates that more than 4.5 billion people in the developing world are exposed to aflatoxins.
- Contamination can occur during pre-harvest and post-harvest.
- Drought increases crop susceptibility to aflatoxin accumulation.



When IITA developed aflasafe, my farm was selected as a site for the trials. My workers and I keenly observed the progress of the maize on the plot where aflasafe was applied. We were encouraged by the improvement, as we did not notice any fungi on the grain. My wish is that the product will be made readily available to all maize farmers in the region

Alhaji Sanusi, farmer Zaria, Nigeria



The Aflatoxin Control in Maize and Peanuts Project is a partnership involving various players with the aim of developing and testing a biocontrol product that can reduce aflatoxin contamination in maize and peanuts for use by smallholder farmers in Sub-Saharan Africa.

The Project is adapting and applying an innovative biocontrol solution developed by the United States Department of Agriculture-Agricultural Research Service (USDA-ARS) that reduces aflatoxin contamination and is already in use in the United States of America.

The biocontrol solution developed by USDA-ARS uses the ability of native atoxigenic strains of *Aspergillus flavus* to naturally outcompete their aflatoxin-producing cousins.

Working with USDA, the International Institute of Tropical Agriculture (IITA) has successfully adapted this technology to develop a biocontrol product called aflasafe, which is now being used in Nigeria. Results from Nigeria show a reduction of between 80-90 percent aflatoxin contamination in maize and groundnuts. This technology is particularly effective as it addresses the source of aflatoxin—the fungus in the soil—before it can contaminate the crop prior to harvest. Adapting and applying this technology in Africa could dramatically improve the health and livelihoods of millions of families while reducing commodity losses due to contamination.

AATF has been working with IITA and USDA-ARS since 2007 in testing aflasafe™ in Nigeria and developing and testing a similar product in Kenya and Senegal with encouraging results.

Benefits of using aflatoxin biocontrol product



- The use of this technology will reduce aflatoxin contamination and improve food production, health and incomes of 4.5 million farmers and consumers enabling them to participate in local and formal trade initiatives.
- Adopting the technology will address food safety issues and benefits will accrue to the entire food value chain – small producers and their families who eat produce from their farms, food and feed processors and food consumers.



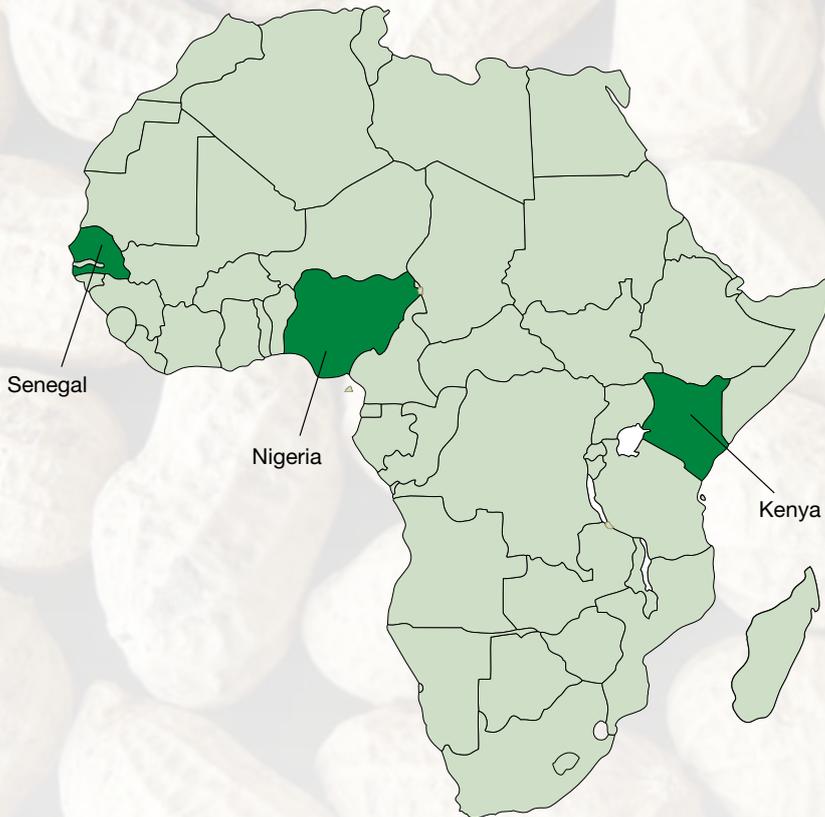
I have not as yet heard about any product that can control aflatoxin contamination in the country yet but I can assure you I will be willing to buy it when available if it can save lives.



Moffat Matolo, farmer Makueni county, Kenya

4.5 million...*number of farmers and consumers expected to benefit from the use of biocontrol technology*

Aflatoxin Control in Maize and Peanuts Project Partnership



- AATF manages product stewardship and component of the project in Kenya including facilitating the conduct of trials, licensing, sub-licensing, registration and determination of the product's business case.
- USDA and IITA provide technical backstopping to all the activities within the project including laboratory facilities for testing of samples collected in Kenya, Nigeria and Senegal, and the provision of inoculum and other products required for trials and capacity enhancement.
- Department of Plant Protection in Senegal, sensitises farmers and conducts efficacy trials of aflasafe in the country.
- Kenya Agricultural and Livestock Research Organisation conducts sensitisation as well as obtaining approvals from the Kenyan regulatory agencies for the repatriation of Kenyan atoxigenic strains and testing the efficacy of the Kenyan atoxigenic strains of *Aspergillus flavus*.
- ACIDI/VOCA in Kenya is responsible for training farmers on aflatoxin management.

Investors

The project is funded by the Bill & Melinda Gates Foundation through IITA and with UK aid from the UK government through AATF.

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