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Aflasafe: Safe Crops, Better Health and Higher Income

RANAJIT BANDYOPADHYAY¹, PETER COTTY²

¹International Institute of Tropical Agriculture (IITA), Nigeria

²USDA - ARS / University of Arizona, Department of Plant Sciences, United States

Abstract

Aspergillus flavus and *A. parasiticus* are saprophytic moulds that are often associated with pre- and post-harvest yield losses of food and feed crops. The fungi reside in soil and infect crops in the field. Upon infection, the fungi produce highly toxic secondary metabolites – aflatoxins — which render contaminated crops unsafe for consumption. Presently, up to 65 % of maize and groundnuts that are produced and consumed in sub-Saharan Africa are aflatoxin contaminated. Consequently, aflatoxin exposure is very high, with > 95 % of children below 5 years containing the toxin in their body. Aflatoxins cause liver cancer, suppress the immune system, stunt children and sometimes kill. In animals, it decreases productivity and profitability. Commodities containing unacceptable aflatoxin levels are either forced into low-value markets or destroyed. To minimise aflatoxin contamination in maize and groundnuts, IITA and its partners have developed a biocontrol product known as Aflasafe. Aflasafe is an environmentally friendly granular formulation of native non-toxic strains of *A. flavus* that are coated on sterile sorghum grains. Aflasafe application in the field displaces toxin producing *Aspergillus* strains, thereby reducing aflatoxins. Farmers in Nigeria, Kenya, and Senegal for instance continue to treat tens of thousands of hectares of maize and groundnut fields annually and have consistently achieved 80 % to 99 % reduction in aflatoxin contamination. Moreover, one annual application of aflasafe provides multiple-year and multiple-crop benefits. The product is cost effective providing high returns on investment and health benefits. Although aflasafe deployment provides a valuable tool for promoting trade, enhancing healthier farm families, increasing income and livestock productivity and profitability, its uptake and scaling up in various African countries is hindered by lack of manufacturing plants, capacity and permits. At the moment, the product is registered in Nigeria and Kenya and only one aflasafe manufacturing facility exists in the whole of Africa. This makes the manufacture and distribution of country specific biocontrol products to West, East and Southern African countries costly and unsustainable. In order to encourage aflasafe use and commercialisation through private, public, or public-private partnerships, modular aflasafe manufacturing plants for local production, manufacturing, marketing, and distribution licenses and mechanisms of providing stewardship and technical backstopping need to be in place.

Keywords: *A. parasiticus*, aflatoxin, *Aspergillus flavus*, contamination, non-toxic strain