

## The Aflasafe Technology Transfer and Commercialization Project (ATTC)

ATTC contributes to improving Africa's food safety through using Aflasafe® – a 100% natural biological control product for fighting aflatoxin from plot to plate.

Our activities are geared towards increasing Aflasafe's availability and

accessibility, and to improve farmer access to lucrative aflatoxin-conscious markets for maize and groundnuts. Through these activities, we contribute to enhancing Africa's food safety and security, as well as income from farming enterprises.



*The ATTC Project is implemented by the International Institute of Tropical Agriculture (IITA) through its Business Incubation Platform (BiP). BiP houses the Aflasafe production plant pictured here at IITA Headquarters in Ibadan, Nigeria. It is the first of its kind in Africa.*



### Our target

Within **5** years, cover

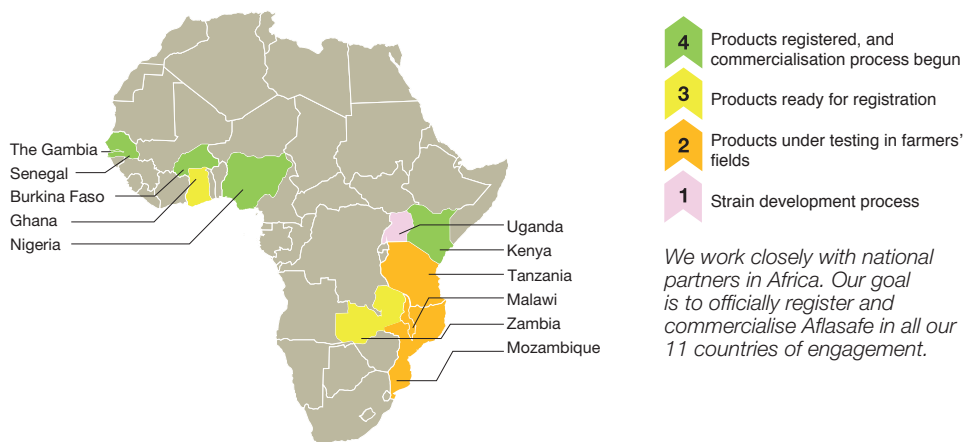
**500,000** smallholder  
hectares

with **Aflasafe**

in **11** African  
countries

To meet this target, ATTC identifies strategic options for partnership with the private sector or government agencies, and executes those partnerships to help ensure the distinct Aflasafe products – customised for each country – reach millions of farmers.

## Commercialising Aflasafe in Africa - Where we are



### Our activities

- Actively pursuing Aflasafe registration in target countries
  - Assuring Aflasafe's availability and access through rigorous technology transfer agreements with manufacturers or distributors; providing technical support
  - Identifying and creating market demand for aflatoxin-safe produce to spur Aflasafe uptake, including incentives to trigger adoption
- for quality assurance; training on, and monitoring use of, Aflasafe by farmers

## Aflatoxin, and why it matters in Africa

Aflatoxin is a poison produced by the soil-inhabiting fungus *Aspergillus flavus* that infects crops in the field leading to loss of lives and harvests. Common in human food and animal feed, aflatoxin can occur throughout the food value chains (ie, anywhere between the crop growing in the field and as cooked food on the plate). As such, aflatoxin compromises food security, health and trade in many developing countries. The extent of contamination varies by season, crop and region, often hovering around 25%.

The effects of aflatoxin on Africa's health and wealth are immense. It causes an estimated 5–30% of liver cancer worldwide, the highest incidence being in Africa (30%). It suppresses the immune system and stunts child growth.

Aflatoxin-related deaths have been reported in Kenya in recent years. Poisoning can begin even before birth through mother-to-baby transmission. Thereafter, young children could continue ingesting aflatoxin through bottle and breast milk, and weaning on maize- or groundnut-based diets. It is an unforgiving and cumulative poison, piling up in our bodies as we continue to eat and drink contaminated foods. So dire is the problem that in some countries, studies show nearly all (more than 95%) of the children under five have aflatoxin in their body, indicating high aflatoxin exposure even at this early age.

Internally, approximately 40% of the produce in African markets exceeds the aflatoxin maxima allowed. Externally, Africa potentially

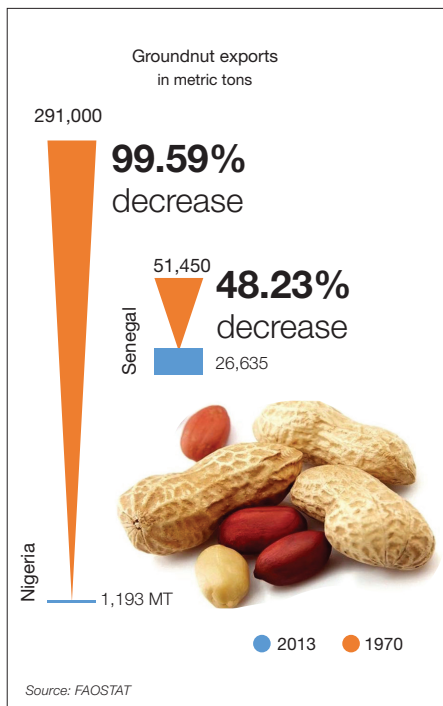


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### **From boom to bust: Then and now.**

*Nigeria's once glorious groundnut pyramids of prosperity from exports are now only a nostalgic memory.*

loses up to USD 670 million annually in lost export opportunities. In the 1960s and 70s, groundnuts accounted for 80% of Senegal's revenue, while in The Gambia, 66% of the agricultural export revenue came from groundnuts. But due to aflatoxin, by the 2000s, Senegal's groundnut exports had fallen to almost a quarter of what they used to be.



## **How Aflasafe was developed, and how it works**

The Agricultural Research Service – United States Department of Agriculture (USDA–ARS) invented a natural biopesticide for aflatoxins that is safe and cost-effective. Thereafter, IITA worked with USDA–ARS and several national partners to adapt and improve this technology for Africa, resulting in Aflasafe. Aflasafe looks like seed sorghum. The grains are ‘killed’ by heating before coating with spores of four friendly fungi from the country's crops or soils. These friendly fungi are native strains of *A. flavus* that cannot ever produce aflatoxins. The beneficial fungi progressively displace toxic strains of *A. flavus*, thus creating a cumulatively safer environment for the crop season after season. Aflasafe consistently reduces aflatoxin contamination in maize and groundnuts by between 80 and 99% at

harvest and in storage, and to levels falling well below the maximum allowed in western markets.

Aflasafe is the gift that continues to give. Applied preharvest but with postharvest benefits, a single application of Aflasafe – just this one single action in each cropping season – is all that is required to protect maize or groundnuts along the entire value chain from plot to plate. Studies have shown Aflasafe-treated crops have lower levels of postharvest contamination compared to untreated crops. When used with good drying and storage practices, Aflasafe's protection is further enhanced. Ten kilos of Aflasafe, costing between USD 12 and 20, are applied on each hectare by simply broadcasting 2–3 weeks prior to flowering.

# Aflasafe is a viable commercial product

With handsome returns on investment for farm-based businesses and their constituent farmers, Aflasafe is an attractive value proposition. Commercialisation discussions with the private sector are at an advanced stage. We are working with global marketing experts on three prongs in each country: target market analysis, production scenarios and delivery approaches.

And even as commercialisation is still in the early stages, about 20,000 farmers are already using Aflasafe through agri-business incentivisation (Nigeria); private-sector distribution (Senegal); and government distribution (Kenya).



*This is Aflasafe. Aflasafe is mainly roasted sterile sorghum (99.7% of the product), coated with four atoxigenic (ie, non-poison-producing) types of Aspergillus flavus native to each country or region. To avoid confusion with regular sorghum, we use food colour to turn Aflasafe blue.*

These public- and private-sector partnerships will enhance Aflasafe's availability and accessibility through investments in its manufacture and distribution, thus fostering adoption. Country-specific strategies are being designed to guide the choice of models and investors in each country.

## Key partners

USDA–ARS, African Union's Partnership for Aflatoxin Control in Africa (PACA), Chemonics International (business development), Dalberg Global Advisors (commercialisation strategy).

## Target countries

Burkina Faso, Ghana, Kenya, Malawi, Mozambique, Nigeria, Senegal, Tanzania, The Gambia, Uganda and Zambia (*countries where Aflasafe is – or is likely to soon be – a nationally registered product*).

## Crops

Maize and groundnuts

## Timeframe

2016–2020

## Funders

The Bill & Melinda Gates Foundation, United States Agency for International Development (USAID) and the CGIAR Research Program for Agriculture, Nutrition and Health.

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