

The Aflasafe Technology Transfer and Commercialisation initiative (ATTC)

ATTC contributes to improving Africa's food safety through using **Aflasafe®** – a 100% natural 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 initiative is implemented by the International Institute of Tropical Agriculture (IITA) through its Business Incubation Platform (BiP). BiP houses the Aflasafe R&D production plant pictured here at IITA Headquarters in Ibadan, Nigeria. This mother factory is the first of its kind in Africa. IITA partners – mostly in the private sector – have since built factories in Kenya and Senegal, and construction is ongoing in Nigeria and Tanzania.



Our target

Within **5** years, cover

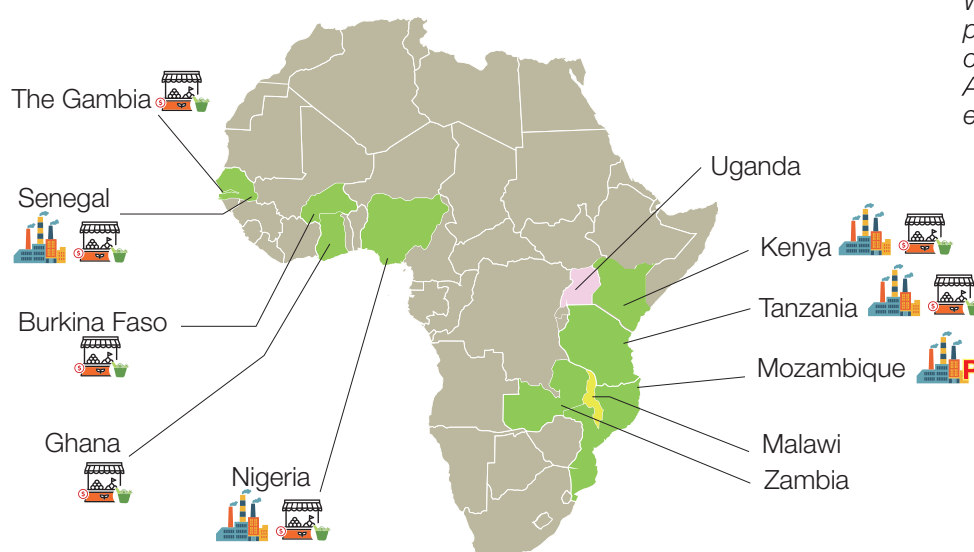
500,000 smallholder
hectares

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



We work closely with national partners in Africa. Our goal is to officially register and commercialise Aflasafe in all our 11 countries of engagement.

- 4** Products registered
- 3** Products ready for registration
- 2** Products being tested in farmers' fields
- 1** Identifying native strains



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 widespread use of Aflasafe, 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* (*A. 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 weakens the immune system and stunts child growth.

Aflatoxin-related deaths have been reported in Kenya, Nigeria and Tanzania 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. 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.

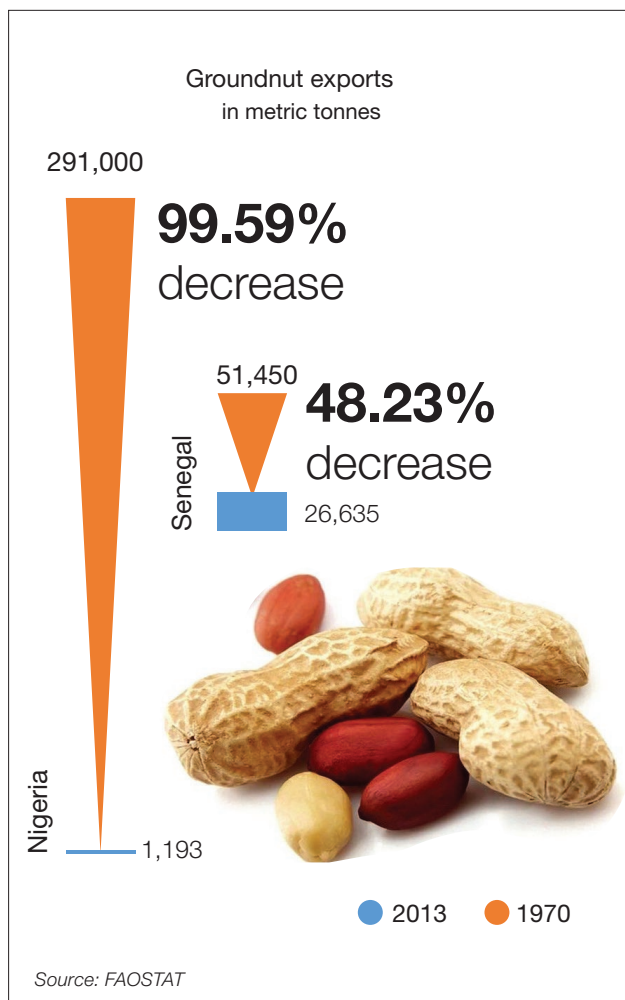
Internally, approximately 40% of the produce in African markets exceeds the aflatoxin maxima allowed. Externally, Africa potentially loses up to USD 670 million annually in lost export opportunities.



From boom to bust: Then and now.

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

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 an all-natural solution for aflatoxin 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, painstakingly customised for each country or region.

Aflasafe is mostly sorghum (99.7%), 'killed' by heating (so it does not germinate and grow) then coated with spores of four friendly fungi from the country's own crops or soils. These friendly fungi are native types of *A. flavus* that cannot ever produce aflatoxin. Due to their sheer numbers once the playing field is tilted in their favour, these abundant friendly fungi progressively overwhelm and displace poisonous types of *A. flavus*, thus creating a cumulatively safer environment for the crop season after season.

When all the facilitative conditions are met, Aflasafe consistently reduces aflatoxin contamination in groundnuts, maize and sorghum by between 80 and 100% 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 alongside good practice in harvesting, drying and storage, 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. For this reason, we engage with both the private and public sectors in commercialising Aflasafe.

We are also working with global marketing experts on three prongs in each country: target market analysis, production scenarios and delivery approaches. Customised country-specific strategies are designed and implemented to guide the choice of models, investors and operationalisation in each country.

These public- and private-sector partnerships enhance Aflasafe's availability through investments in its manufacture and distribution, thus fostering its widespread use.

As at September 2019, more than 315,000 hectares across several countries were covered with Aflasafe.



This is Aflasafe, dyed blue with food colour to avoid confusion with sorghum to eat. The green band along the bottom of the pack certifies that non-hazardous Aflasafe has the highest World Health Organisation standard for safety.

Key partners

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

Target countries

Burkina Faso, Ghana, Kenya, Malawi, Mozambique, Nigeria, Senegal, Tanzania, The Gambia, Uganda and Zambia

Crops

Groundnuts, maize and sorghum

Timeframe

2016–2020

Funders

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

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