Demonstrating aflatoxin biocontrol technology in Senegalese groundnut fields

Donor: African Agricultural Technology Foundation (AATF)

Timeframe: 2010 - 2013

Background: Groundnut is a major agriculture commodity of Senegal, providing food and income to a large number of people. Aflatoxin contamination in groundnut is a serious problem, impacting on people's health and income. Senegal has lost a major share of the groundnut export market due to aflatoxin contamination. There is also a rising concern that liver cancer is increasing in the groundnut basin area of Senegal due to frequent consumption of groundnut contaminated with aflatoxin. Most African countries including Senegal have set 20 ppb as the safe level for aflatoxin in food for human consumption, although those foods frequently contain far more aflatoxins in Senegal, due to the inability of regulatory enforcement to penetrate to the small farmer. As such, food safety measures that ensure a good product quality should be viewed as an essential component of primary health care, increasing productivity and the general well being of a population. Biological control of aflatoxin has been shown to be effective in reducing aflatoxin contamination in maize in Nigeria by the International Institute of Tropical Agriculture (IITA) and its partners. AATF provides leadership and/or assistance in product development (e.g. IP or patenting, registration of the strains), product deployment (e.g. field testing, and technology stewardship), and project implementation. AATF has been at the forefront of promoting large-scale field testing of aflasafe in Nigeria and on-station field testing in Kenya.

DPV staff collecting a soil sample in a groundnut field in Senegal *(photo by L. Senghor)*

Project summary: AATF has provided funds to start implementation of bio-control of aflatoxins in Senegal for evaluating the efficacy of aflasafe SN1, a product that contains four Senegalese atoxigenic strains of *Aspergillus flavus*. In the first year (2010), a trial was conducted in groundnut fields in two regions where aflatoxin contamination is important. In the second year (2011) field demonstrations were conducted to confirm results as it is required prior to the registration of the biocontrol product in Senegal. The project equally emphasizes farmer training and awareness on the health effects of aflatoxin in their food chain, as well as linking farmers to the feed and food manufacturing industry. In the near future, biocontrol of aflatoxins will be initiated in the Gambia.

Objectives

- to determine the efficacy of the biocontrol technology in reducing toxigenic strains in soil and aflatoxin concentration in groundnut
- to expose farmers to the biocontrol technology and obtain their feedback as end-users.
- to link farmers with the feed and food manufacturing industry that value aflatoxin-safe groundnut
- to nurture capacity in biocontrol research among Senegalese scientists

Outputs

- significant reduction of aflatoxin in groundnut from farmers' fields
- a biocontrol product registered for use by smallholder farmers
- farmers sensitized about the health effects of aflatoxins
- farmers linked to the feed and food industry for access to aflatoxin-free groundnut markets
- Senegalese scientists trained in biocontrol research

Major partners: Direction de la Protection des Vegetaux (DPV), International Institute of Tropical Agriculture (IITA), United States Department of Agriculture - Agriculture Research Service (USDA-ARS), Université Gaston Berger

Target country: the Gambia and Senegal