

# Developing a Behavior Change Strategy for Aflatoxin Reduction in Groundnuts

The TOPS Agriculture and Natural Resource Management Case Study Series  
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## USAID/Uganda Production for Improved Nutrition (PIN) Project

RECO Industries Ltd., with its partner University Research Co. (URC), is implementing the USAID/Uganda Production for Improved Nutrition (PIN) project. PIN aims to reduce the burden of undernutrition among children, pregnant and breastfeeding mothers, and people living with HIV/AIDS in Uganda by:

- increasing local production and clinic service delivery of therapeutic and supplementary foods
- improving the economic wellbeing of smallholder farmers through support of producer organizations
- expanding access to essential services for orphans and vulnerable children.

RECO Industries, a private sector agro food processing company in Uganda, purchases approximately 400 metric tons of groundnuts annually from PIN producer organizations and local producers outside the project for the production of ready-to-use therapeutic foods.<sup>1</sup> The producer organizations are motivated to sell their product to RECO Industries because they receive a price premium, approximately 300-500 Ugandan Shillings (15% to 20%) more, per kilo higher than they might receive through the local market.

In Uganda, there are many production and post-harvest concerns that affect crop quality, but aflatoxin is one of the most pervasive and harmful. Because aflatoxin is frequently present in groundnuts, RECO Industries must test crop samples before purchasing to ensure there is no aflatoxin in their products. URC is working with the producer organizations to implement agricultural best practices to limit aflatoxin contamination. In order to increase adoption of best practices, URC developed a Social and Behavior Change (SBC)<sup>2</sup> communication strategy through the PIN project's participatory Farmer Field Schools (FFS).<sup>3</sup> URC used this strategy to support messaging with the aim of producer groups changing behaviors and reducing the amount of aflatoxin in their groundnuts.



Photo: Groundnut Farmer in Uganda  
Photo Credit: URC



<sup>1</sup> Learn more about therapeutic foods [here](#).

<sup>2</sup> Learn more about [Social and Behavior Change](#) on the FSN Network

<sup>3</sup> Learn more about [aflatoxin and behavior change](#) on the FSN Network

## PIN's Farmer Field School Approach

The PIN FFS methodology is participatory in nature and focuses on understanding current farmer practices and experiences. Farmers take an active role in shaping the discussion and curricula of the FFSs, meaning discussions may differ for each group. The majority of time during each FFS session is devoted to group collaboration and capacity building. The remaining time is devoted to making group decisions about which farming practices to adopt. The PIN Agriculture Field Officer (AFO) facilitates these discussions and ensures that lead farmers have an opportunity to learn about the technical recommendations for each farming practice that is promoted within the FFS.

### Designing the SBC Strategy through Participatory Farmer Field Schools

In 2016, URC finalized an SBC approach to provide consistent, accurate, and compelling messages that fit within the participatory FFS approach and that reinforce the core content of the FFS. For each production or post-harvest practice a producer organization adopts through the FFS, the SBC approach defines the key messages that the AFOs then communicate to lead farmers. Additionally, the approach defines a complementary message for the lead farmers to share with their peers during subsequent meetings. At these meetings, lead farmers play a key role in negotiating behavior change and normalizing new farming practices within the group.

For each farming practice discussed within a FFS, the SBC approach includes:

- Ideal behavior statements, which align with Good Agriculture Practices<sup>4</sup> (GAP) and behaviors as defined within the USAID/Uganda Production for Improved Nutrition FFS manual
- Current and planned message delivery channels
- The degree to which each practice is being applied by producer organizations
- A description of barriers and motivators for each practice
- Proposed key messages for project staff and for lead farmers
- The current priority that the project places on the farming practice (high, medium, or low)
- Reference details for locating technical guidance on the farming practice within the FFS manual
- Information on PIN's current approach to monitoring the practice.

### Aflatoxin

Aflatoxin is a toxin found in some crops, including groundnuts, occurring during production, harvest, and post-harvest stages of the crop life. Long-term exposure to aflatoxin has shown to contribute to stunting and undernutrition rates, and high intensity, acute exposure can even cause death. Aflatoxin, produced by the fungus *Aspergillus flavus*, originates in the soil but can also be transferred to crops during production through other sources such as contaminated decayed vegetation or certain mulch material. Once the crop is contaminated with the fungus, the aflatoxin contamination level can rise as the fungus spreads. Therefore, farmers should work to prevent initial aflatoxin exposure and reduce the ability for the fungus to spread after exposure.

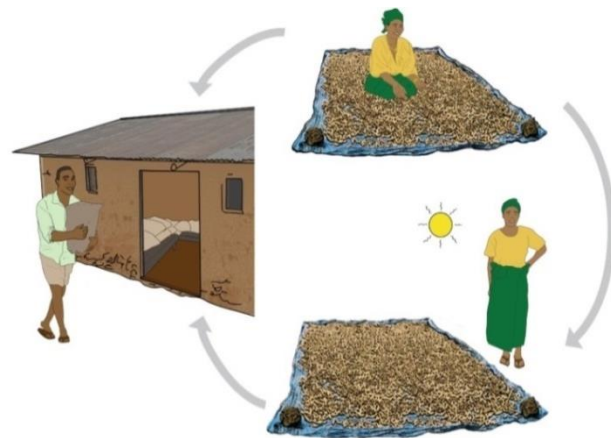
<sup>4</sup> Learn more about GAP here: <https://www.ams.usda.gov/services/auditing/gap-ghp>

## Aflatoxin and Social and Behavior Change

The main agriculture practices affecting aflatoxin and that are addressed in the SBC strategy are harvesting, cleaning, drying, shelling, and storing to prevent fungal growth. The project teams identified the barriers and motivators for each farming practice based upon lead farmer feedback that was documented following each FFS session and during AFO lead farmer monitoring visits.

URC then collated the learnings from more than 80,000 farmer interactions each year during the first three years of the project (i.e., 200 lead farmers attending two seasonal rounds of 10 FFS sessions led by each of 21 AFOs).

In addition to the set of key messages, URC used its SBC approach to identify additional message delivery channels to drive uptake of the key production and post-harvest practices that prevent aflatoxin. The delivery channels included action cards used by lead farmers during producer organization meetings, as well as local radio programs that were supported by FFS-based radio listeners' groups and that featured entertaining educational drama and local expert talk. URC selected action cards based upon its successes with similar agricultural interventions within the region. Radio was chosen due to strong evidence for its use as an SBC medium, realized through focus group discussions and farmer polling efforts under PIN, as well as the existing use of radio for extension in Uganda.



*Figure 1. PIN aflatoxin post-harvest behavior card*

Once the key behaviors, barriers to adoption, and motivators were identified, URC developed the action card illustrations and radio messages for the community, aimed at promoting each agricultural practice. The action cards were tested through six focus group discussions with a total of 66 lead farmers in five districts to ensure each card was effective in terms of:

- **Comprehension**- lead farmers were asked to describe what they saw on the action card
- **Motivation**- lead farmers were asked whether the illustration on the action card would influence them to try the behavior
- **Messaging and approaches**- lead farmers were asked how they currently communicate the practice within their producer organization.

URC incorporated illustration feedback into the final action card designs. However, key messages for lead farmers to use with their peers were intentionally designed after, and as a result of, pretest feedback. Through role play and self-report, URC sought to understand how lead farmers communicated each farming practice to the producer organization and which SBC techniques lead farmers used to negotiate the adoption of the proposed behavior at the producer organization level. Wherever possible, URC integrated these insights and practices into the final message design of each action card.

After testing, URC finalized the set of action cards and began translating the cards into the 10 local languages represented across PIN's area of operation. The project began rolling out the tools to project staff in December 2016 with subsequent producer organization-level tool distribution and launch of SBC agriculture-nutrition radio programming in early 2017.

## Lessons Learned

URC learned lessons through creating an SBC strategy on limiting aflatoxin contamination in an already existing program:

- **Build key messages around what is already working for the priority group<sup>5</sup>**- In cases where the project layers on a new set of SBC messages at the mid-point of a project or beyond, PIN has found it successful to create messages that reflect experiences that the priority group already has with behavior negotiation. Lead farmers find it easier to consistently communicate key behaviors by incorporating concepts they already use in discussions with peers.
- **Key messages should use common local terminology**- While lead farmers are accustomed to hearing about aflatoxin as part of the technical training they receive through FFSs, URC's action card pretest revealed that lead farmers were describing aflatoxin to their peers by speaking more generally about 'contamination.' URC therefore designed key messages for staff to use with lead farmers and for lead farmers to use with their peers that reflected different levels of precision about the key problem (a specific fungus versus the more general concept of contamination) while still focusing on the same set of motivators (protecting the sales value of the crop and protecting the home consumer from contamination).

## Conclusions

An SBC strategy is often part of a successful agriculture program and can help improve the adoption of agricultural best practices. The PIN project's participatory FFS structure played an integral role in understanding farmer perceptions as well as identifying the motivators and barriers to shape the program's SBC strategy on agriculture behaviors affecting aflatoxin levels in groundnuts.

## The TOPS Program

The Technical and Operational Performance Support (TOPS) Program is the USAID/Food for Peace-funded learning and knowledge management initiative, bringing the highest quality information, knowledge, and promising practices in food assistance programming to implementers and donors around the world to ensure more communities and households benefit from the U.S. Government's investments to fight global hunger.

### Contact Information

**Serena Stepanovic**

Senior Technical Advisor, Strategic Behavior Change & Communication, [sstepanovic@URC-CHS.COM](mailto:sstepanovic@URC-CHS.COM)

**Nathan Turyayesiima**

Livelihoods & Agriculture Technical Manager, Uganda PIN Project, [nturyayesiima@URC-CHS.COM](mailto:nturyayesiima@URC-CHS.COM)

**Mary DeCoster**

TOPS Senior Social and Behavior Change Specialist, [mdecoster@fh.org](mailto:mdecoster@fh.org)

**Eric Carlberg**

TOPS Regional Agriculture Specialist, [ECarlberg@mercycorps.org](mailto:ECarlberg@mercycorps.org)

<sup>5</sup> Priority group refers to the group of people that you are encouraging to adopt a behavior.