

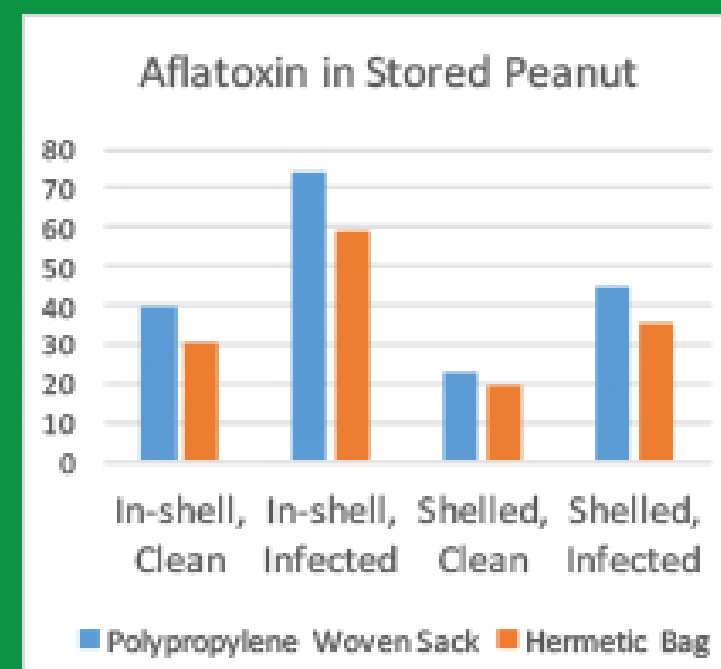
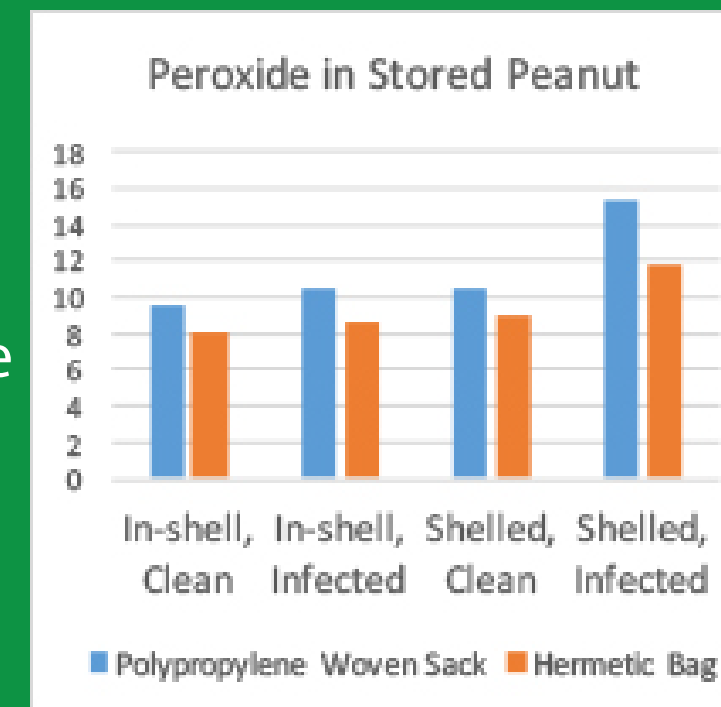
Intervention strategies to prevent post-harvest loss and contamination in peanut in Haiti, Ghana, Zambia, Malawi and Mozambique during the 2012-2016 project term for the Peanut & Mycotoxin Innovation Lab. J. RHOADS, D. HOISINGTON and the entire PMIL Research Team

Timely harvest, effective drying and proper storage minimize post-harvest loss and aflatoxin contamination in peanut in five target countries that are the main focus of the Peanut and Mycotoxin Innovation Lab (PMIL). Near the end of a five-year program of research involving scientists in the U.S. and abroad, value chain projects in Haiti, Ghana and southern Africa have demonstrated the effectiveness of certain post-harvest strategies, including specific drying systems. At the same time, research has clarified the source of contamination in marketed peanut products in Malawi and Ghana, creating training opportunities to improve processing and prevent avoidable contamination.

STORAGE

In developing countries, peanuts are often stored at home or in small warehouses in woven poly bags. These conditions often lead to high losses to insects and aflatoxin contamination.

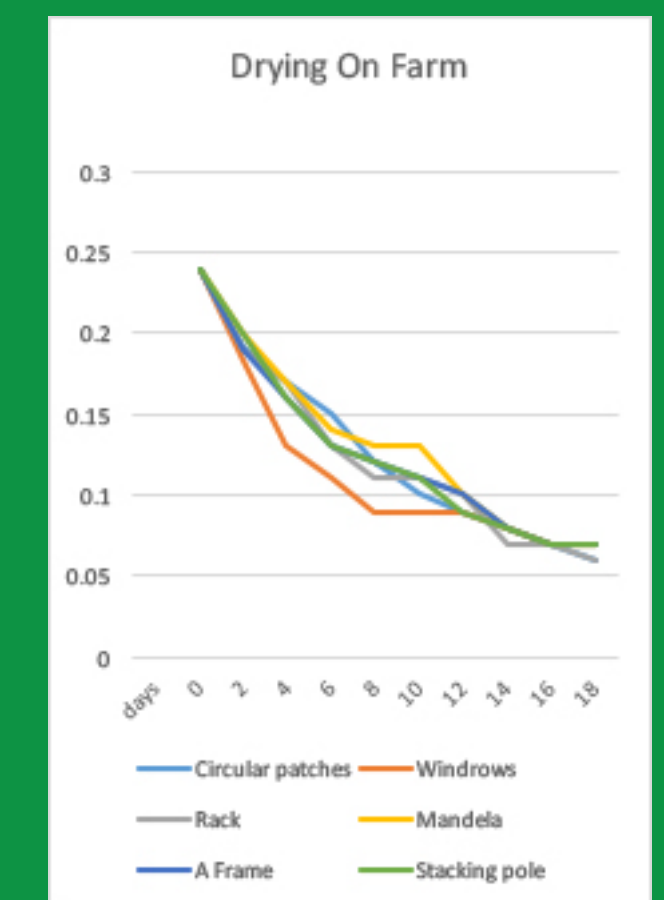
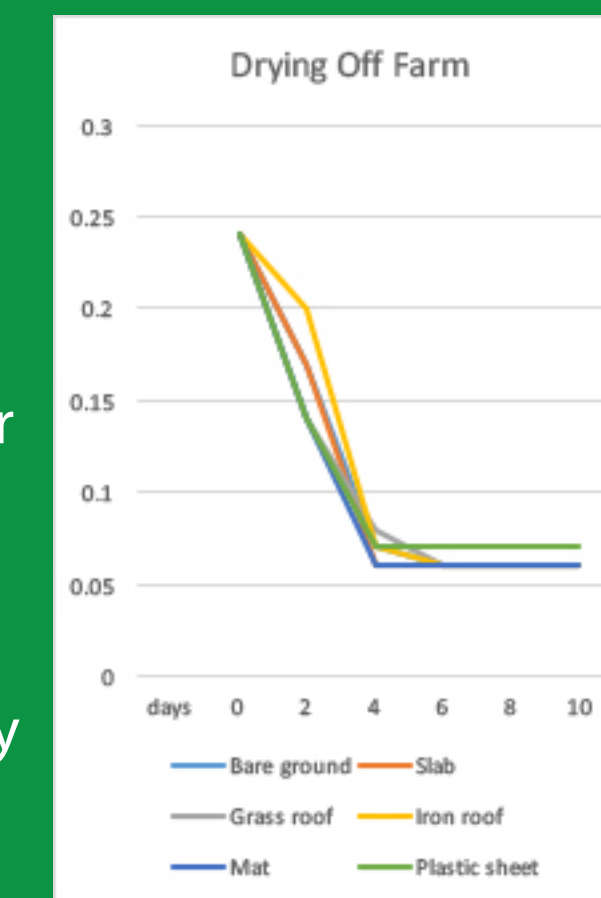
Hermetically sealed bags are an increasingly common technology available in developing countries for grain storage. Tests of in-shell and shelled peanut in the U.S. and Ghana showed the bags not only can suppress aflatoxin production, but also maintain higher quality, in stored nuts over traditional polypropylene woven sacks. (Clara Darko, Virginia Tech and Ghana Ministry of Food and Agriculture.)



DRYING

Proper drying is critical for aflatoxin management, but is difficult in low-input setting. Most peanuts are threshed by hand at harvest and dried on the ground in the sun.

Several methods were evaluated in Malawi (Mandela cock, A-frame, tarps, alternative drying surfaces), evaluating the efficiency of drying on and off the farm. Tarps provided quicker drying, separation from soil and ease of pickup in case of rain. Adoption of tarps is limited however, due to cost, availability and lack of impact that peanut quality has on price. (Monica Chimaza, LUANAR)

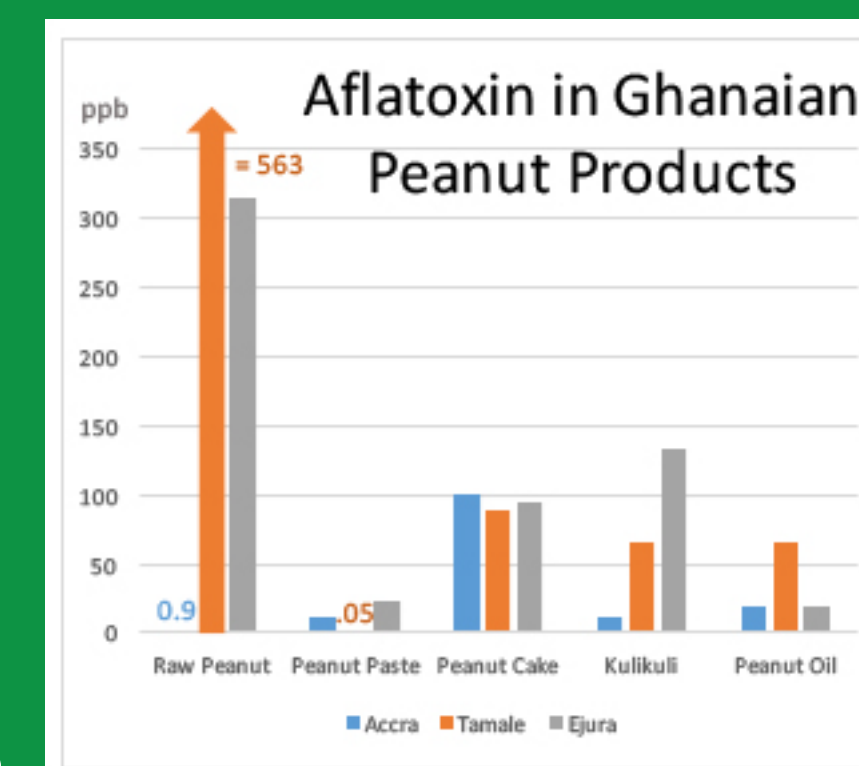


Solar dryer showed potential for optimizing drying conditions (not overheating, no rewetting from rain) and likelihood for better germination. The challenge now is to scale to the village level in a cost effective way. (Maxwell Lamptey, Crops Research Institute)

PROCESSING

Even when aflatoxin is controlled through pre/post-harvest interventions, processing into finished peanut products can either maintain the quality or contaminate the finished products.

An examination of raw peanuts and processed products in three regions of Ghana indicated that sorting may greatly reduce the aflatoxin in the supply of raw nuts, but contamination can rise during storage and processing. Raw nuts sampled in the northern growing region showed high levels (implying they were not sorted), but contamination was low in Accra. Regardless of location, aflatoxin tended to rise during processing, suggesting cross-contamination, including microbial. (Sylvia Baah-Tuahene, University of Ghana)



Based on analysis of the peanut products produced by 16 small-scale processors in Malawi, a training program was created.

- Pre-intervention, aflatoxin ranged from 0 – 153 ppb;
- 50% of samples were contaminated
- Most processors were female (81%)
- Post-intervention, samples were improved in quality and safety; at least one participant gained certification to sell in the formal market. (Tchiyiwe Moyo-Chunda, LUANAR)