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LEO BRIEF
Leveraging Economic Opportunities

EVALUATION OF SANITARY AND PHYTOSANITARY (SPS) TRADE POLICY CONSTRAINTS WITHIN THE MAIZE, SOYA AND GROUNDNUT VALUE CHAINS IN SOUTHERN AFRICA

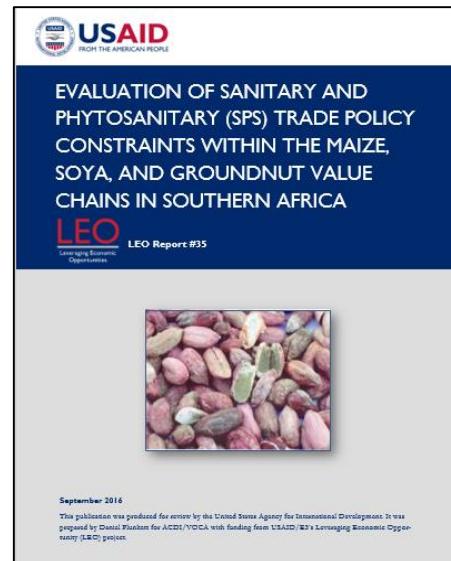
BRIEF I: AFLATOXIN: MANAGING CONTAMINATION IN GROUNDNUTS AND MAIZE THROUGH ALTERNATIVE MARKETS AND PROPER DISPOSAL

USAID's Bureau for Food Security commissioned the study *Evaluation of Sanitary and Phytosanitary (SPS) Trade Policy Constraints within the Maize, Soya, and Groundnut Value Chains in Southern Africa* through the [Leveraging Economic Opportunities](#) (LEO) project¹. The study is one of three regional assessments carried out in East, Southern, and West Africa regions to identify key SPS-related constraints to trade within priority Feed the Future value chains, in order to gauge opportunities for potential SPS-related investments. The Southern Africa study targeted four countries: Malawi, Mozambique, South Africa, and Zambia. The study identified aflatoxin as one of the most important SPS issues; this brief spotlights ways to manage contamination in groundnuts and maize, particularly focused on proper disposal and alternative markets.

SITUATIONAL OVERVIEW

Groundnuts and maize with overly high levels of aflatoxin are unsafe for humans or animals to eat, but under the present regulatory system, the contaminated food typically goes back into the human and animal food chain. Incineration of aflatoxin-contaminated food is difficult to ensure due to the lack of compensation for the product, high cost of incineration, and potential diversion to the poorest populations. Alternative disposal options are mainly unattractive, including small-scale incorporation into feed for polygastric animals, limited blending into peanut butter in combination with low-level product, ethanol production or biomass generation of electricity. Disposal is a food safety issue lost in the cracks between the national ministries of health and agriculture. An inter-ministerial committee at the COMESA or SADC level could be empowered to assist public and private sector actors to find suitable solutions in a Voluntary Code of Good Conduct. During this study, there were frequent examples of groundnuts and maize found to be contaminated with overly high levels of aflatoxin contamination. This is due to the lack of aflatoxin testing and enforcement for domestic consumption of groundnuts and maize.

The current regulatory approach is for each country to set one risk tolerance level² and any aflatoxin level above that is unacceptable, cannot be traded and should be destroyed. However, the reality is that a majority of contaminated grain ends up being consumed within the human and animal value chains. Other disposal techniques include burying in the ground mixed with lime, dumping in lakes, rivers or the ocean, or simply tossing into the rubbish pile in the urban periphery, but these are not acceptable environmental outcomes.



¹ For more information on LEO, and to access the full studies for East, West, and Southern Africa, visit www.microlinks.org/leo.

² In maize, the CODEX level is 10 parts per billion (ppb); for groundnuts some countries have a standard of 15ppb.

ALTERNATIVE MARKETS FOR CONTAMINATED GRAINS

The following different options exist for how to find an outlet for contaminated commodities. The LEO Southern Africa SPS report points out the need to conduct a detailed study to lay out the costs and benefits of these alternative markets. There are additional concerns about the safety of these different uses as well.

- 1) Shelling, Sorting and Blanching Groundnuts** - For groundnuts, keeping the peanut shells separate from the inside nuts during mechanical shelling is one method for reducing exposure to aflatoxin. Hand sorting can greatly reduce risk, removing those that are misshapen, shriveled or wrinkled. However, rather than being destroyed, the poor-quality nuts are often sold at a low price or simply given to the very poorest segments of the population, representing greater danger to humans and animals since the poor-quality nuts once sorted out have a concentrated level of aflatoxin contamination. Peanut butter manufacturers in South Africa report lower aflatoxin levels from blanching the groundnuts, allowing them to blend in a greater amount of product.
- 2) Livestock Feed for Large Animals** – Use of aflatoxin-contaminated maize or groundnuts in animal feed can be harmful to both the animals and to humans consuming livestock products. Much as in children, in any animal the presence of aflatoxin will contribute to poor growth rates which in competitive livestock industries results in higher total costs. Poultry seems particularly susceptible to aflatoxicosis or simply being negatively influenced by consumption of aflatoxin-containing feedstock. Cattle, sheep and goats seem better able to digest feed ingredients with higher levels of aflatoxin than smaller animals such as chickens, ducks or guinea pigs. The share of contaminated food which can be blended into a food mix has to be carefully monitored, difficult to do in Southern Africa's rather-disorganized animal feed markets. The seller of contaminated maize for animal feed certainly must disclose the fact to the purchaser inevitably leading to a lesser price.
- 3) Biomass electricity generation or production of ethanol** are possibilities, but the biomass industry is yet to get off the ground. Malawi produces 300,000 tons of ethanol derived from maize, but most of the ethanol in the region is based on sugarcane molasses, with the Ethanol Producers of Southern Africa (EPSAS) a grouping of seven major producers.

IS INCINERATION THE ONLY WAY?

The most effective way of destroying contaminated maize is through an accredited incineration facility. However, in many countries in Africa these are only set up to manage medical waste and cannot cope with larger volumes. Significant investment would need to be made to handle contaminated grain; firstly, in managing the grain once it has been identified as contaminated (traceability), secondly in systems to isolate the contaminated shipment during the processing stages to ensure appropriate use. There could be opportunities to explore public-private cooperation to establish an incinerations service; however, a question remains about how contaminated grains would be identified and what incentives producers would have to turn over their grain for incineration.

Additionally, for a safer food supply, southern African countries need to increase the frequency of sampling and testing of maize and groundnuts for aflatoxin. To do so, testing fees should recoup the actual cost of conducting the test, so laboratories can stay equipped with regular purchases of consumable inputs such as testing strips and the chemical re-agent needed, which are perishable within 3 months. Tackling the question of how to dispose of contaminated food in a safe manner needs to be part of the overall planning in improving testing and enforcement.

TAKE ACTION AT THE REGIONAL LEVEL WITH A CODE OF GOOD CONDUCT

To go along with their regional plant health, animal health and food safety strategies, COMESA and SADC are in position to assist their respective member countries in drafting and adopting a Code of Conduct to which national governments and private operators could agree to adhere, specifying the range

of acceptable available options for disposal by both public bodies and private sector actors. COMESA and SADC are promoting a single maximum aflatoxin level for maize of 10 parts per billion (the Codex standard), but the regional standards should specify that this is for human consumption and outline the tolerance levels by animal for use as feed, along with suitable mixing procedures.³

A multi-stakeholder dialogue and additional research in each country would be needed before adoption of such a Code. After adoption there would need to be greater awareness of the aflatoxin problem, available options for disposing contaminated food, and enforcement mechanisms in place to ensure adherence to the code. The Code of Good Conduct could build upon the international guidelines for the prevention and reduction of aflatoxin contamination in groundnuts issued by Codex Alimentarius, integrated by Mozambique into its national legislation on norms and standards as NM 77 of 2008.

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³ The U.S. Food and Drug Administration (FDA) acceptable level for beef finishing operations is 15 times higher than that for any young animal and dairy cattle. Thus, the size and the age of the animal must be taken into consideration, along with the degree of proximity to the human food chain.