ECONOMIC IMPACT OF AFLATOXIN

AFLATOXIN'S NEGATIVE IMPACT ON TRADE

Highlights

- 25% of world food crops are affected.
- Aflatoxin continues to be a significant problem in Africa and Asia and has enormous economic consequences on commodity losses, health and trade, especially where it is unregulated.
- Contamination is proving to be a major barrier in linking African farmers to markets as aflatoxin prevents commodities from meeting international, regional and local regulations and standards governing agricultural trade and food safety.
- Only 15 countries in Sub-Saharan Africa have regulation governing aflatoxin making trade challenging.
- The estimated annual loss to African food exporters of cereals, dried fruit and nuts from attempting to meet EU aflatoxin standards is roughly **$670 million** (Otsuki et al. 2001)

BACKGROUND

Aflatoxins are highly toxic, cancer causing fungal metabolites known to cause immune-system suppression, growth retardation, liver disease, and death in both humans and domestic animals. According to the United Nations Food and Agriculture Organization (FAO), 25% of world food crops are affected, and countries that are situated between the 40ºN and 40ºS are the most at risk. Without mitigation measures, small producers, mainly women, are those hit hardest. Aflatoxin contributes to significant nutritional and economic losses in major commodities which form the economic backbone of many African economies; groundnuts, maize, sorghum, cassava, yam chips, cotton seeds, coffee, cocoa, copra, and oils. Beyond affecting crops, aflatoxin contamination also impacts the production of healthy livestock through contaminated feed. Animal exposure causes a decrease in milk and egg yields and serious illness.

Human exposure to aflatoxins is limited by regulations that prohibit the use of crops containing excess quantities of aflatoxins for foods and feeds. Aflatoxins are regulated in part per billion (ppb) ranges with the maximum allowable level varying with country and intended use of the commodity. The quantity permitted in U.S. foods and feeds ranges from 0.5 ppb to 20 ppb, depending on how the material will be used. The EU has set the limit for aflatoxin in foods destined for human consumption at 2 ppb (aflatoxin B_1) and 4 ppb (total aflatoxins). According to FAO, only 15 African countries had regulatory limits for aflatoxins as of 2003, but even in countries with regulations, food that does not move through formal market channels *e.g.,* almost all food sold in local markets, is effectively unregulated in Africa. Contamination is proving to be a major obstacle in linking African farmers to markets as aflatoxin prevents commodities from meeting international, regional and local regulations and standards governing agricultural trade and food safety. Unless aflatoxin levels in crops and livestock are effectively managed, agricultural development efforts to achieve greater food security and improve health and trade, especially among small farmers, will be undermined. In 2001, a study estimated that African food exporters lose $670 million per year by not meeting EU safety standards alone.

CAADP PILLAR II

The ultimate objective of Pillar II is to accelerate growth in the agricultural sector by raising the capacities of private entrepreneurs, including commercial and smallholder farmers, to meet the increasingly complex quality and logistics needs of domestic, regional, and international markets, focusing on strategic value chains with the greatest potential to generate broad-based income growth and create wealth in the rural areas and the rest of the economy. The Pillar agenda focuses on policy and regulatory actions, infrastructure development, capacity-building efforts, and partnerships and alliances that could facilitate smallholder-friendly development of agricultural value chains to stimulate poverty-reducing growth across African countries.

Sanitary and Phytosanitary issues, food safety, and aflatoxin in particular, presents obstacles to trade and must be addressed in a comprehensive way to support these Pillar II objectives.

AFLATOXIN AFFECTS ALL FOUR CAADP PILLARS INTENDED TO ACCELERATE AGRICULTURAL GROWTH, REDUCE POVERTY AND ACHIEVE FOOD AND NUTRITION SECURITY

- Pillar I. Extending the area under sustainable land management and reliable water control systems
- Pillar II. Improving rural infrastructure and trade related capacities for market access
- Pillar III. Increasing food supply, reducing hunger, and improving responses to food-emergency crises
- Pillar IV. Improving agriculture research and technology dissemination and adoption.

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ECONOMIC INCENTIVE

In developed countries, there is significant economic incentive to develop aflatoxin mitigation solutions. Preventing human exposure to aflatoxins involves removing crops with unacceptable aflatoxin contents from both foods and feeds. Annually, millions of dollars of crops are destroyed,in order to prevent human exposure. Contaminated crops may also be directed to alternative uses as a means to control entry into the food supply; for example, they may be used for oil production, turned into fuel, or detoxified using aflatoxin binders and ammoniation (destruction of the aflatoxin with ammonia) reducing financial losses for farmers.

KENYA: In recent years, aflatoxin contamination of maize products have led to outbreaks of acute aflatoxicosis in Kenya; out of 317 reported cases of aflatoxicosis among people in 2004, 125 cases resulted in death, with similar events repeated during 2005 to 2008. In 2010, the Government of Kenya estimates that a full ten percent of Kenya's maize harvest was contaminated by aflatoxin. With ten percent of the maize harvest essentially "lost," the resulting economic losses in Kenya are estimated to be approximately $100 million (IITA) as aflatoxin contamination cuts across the value chain, affecting farmers, millers, traders, markets and finally, consumers, devastating the Kenyan maize market. The impact on health is equally alarming, especially for small farmers, the majority of whom are women, and their families who eat their own production.

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HARMONISATION OF SPS MEASURES ARE NECESSARY TO IMPROVE MARKET ACCESS AND IMPROVE BOTH INTER-REGIONAL AND INTERNATIONAL TRADE

One of the barriers to intra-regional trade is sanitary and phytosanitary (SPS) measures. SPS issues can restrict intra-regional and international trade for three reasons. First, the lack of a harmonized approach to SPS issues hinders trade and differing regulations in various countries increases transaction and trading costs, reducing the benefits of and acting as a disincentive to trade.

Second, a lack of information can lead countries to adopt justifiable measures, which may not be necessary if there were greater access to information. Third, SPS capacity is uneven amongst countries. Countries with weaker SPS capacity will find it more difficult to trade with countries where SPS capacity is stronger.

Thus countries with stronger economies and greater SPS capacity generally enjoy a larger share of the trade. Uneven trade relationships will tend to widen if SPS barriers are not addressed, not only between economies in Africa, but between developing and developed nations where regulations are enforced.

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