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Measuring the Demand for Aflatoxin Tested Maize in Kenya

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Timeline
2013-2015

Sample Size
Up to 5,000 customers of 72 shops and nearby markets

Research Implemented by IPA
Yes

Measuring the Demand for Aflatoxin Tested Maize in Kenya

Abstract

Aflatoxin is a toxin produced by a fungus that grows on certain crops, such as maize and groundnuts. Consumption of high levels of aflatoxin can be fatal, and chronic exposure has been linked to liver cancer, suppressed immune response, and child stunting. Kenya has among the highest rates of aflatoxin exposure globally.[1] This study evaluates whether there is sufficient demand in the Kenyan market for flour that has been tested for aflatoxin and how demand might be stimulated.

Policy Issue

Aflatoxin is a toxin produced by the Aspergillus species of fungus. Consumption of high levels of aflatoxin can be fatal, and chronic exposure has been linked in numerous studies to liver cancer, suppressed immune response, and child stunting. Aflatoxin can be present in a variety of crops and animal products, but the consumption of maize and groundnuts is the most common source of exposure worldwide. While the developed world has reduced the risk of aflatoxin contamination from the human food supply through the use of preventive controls, including routine testing and channeling highly contaminated grain to less susceptible species, exposure remains a risk in many developing countries where maize is the staple food for humans. More than 1.2 billion people in Sub-Saharan Africa and Latin America rely on maize as a staple crop.[2]

This “proof-of-concept” project will assess whether the Kenyan market will reward maize millers who implement a process control system to manage aflatoxin risk. This information will assist millers in deciding whether to invest in these improved practices. Demonstrating that a potential market exists for labeled process-verified flour is expected to catalyze provision of safer maize meal by the private sector.

Context of the Evaluation

Maize is the staple for 96 percent of Kenya’s 40 million people,[3] and is the primary source of aflatoxin exposure in that country. The legally allowable level of aflatoxin contamination in food for human consumption set by the Kenyan regulatory authority is no more than 10 parts per billion. However, one study by Center for Disease Control and Prevention (CDC) scientists showed that 65 percent of maize samples collected from 20 major millers did not meet the national standard.[4] The Cereal Millers Association (CMA) of Kenya has expressed strong interest in improving food safety standards in the maize-processing sector and IPA is partnering with one of their member companies for this study.

The study is taking place within the current distribution network of the miller and includes Machakos, Kitui, Nairobi, Meru, Embu, Nyeri and Murang’a counties. Machakos and Kitui have a particularly high incidence of aflatoxin contamination in maize.

Details of the Intervention

The two-year study evaluates whether there is sufficient demand in the Kenyan market for aflatoxin-tested flour and how demand for the flour might be stimulated. It involves working closely with a miller and 72 small shops and supermarkets to produce and market a flour that has been tested, labeled, and verifed by a third party as aflatoxin-free.

Working with the Texas A&M Agrilife Research Office of the Texas State Chemist through the Aflatoxin Proficiency Testing for Eastern and Central Africa (APTECA) program, IPA will monitor collaborating millers’ compliance with the APTECA protocol. Texas A&M AgriLife Research will verify the accuracy of the aflatoxin test results at their accredited laboratory in Nairobi.

The research team will begin collecting sales data from 72 shops before the tested maize flour is officially launched and will continue tracking sales for the duration of the study. One-third of shops in the study will display a poster explaining the aflatoxin-safe label, with no discounting or additional promotion. Consumer response to safety labeling of flour at these shops will inform researchers about the impact of such labeling under typical market conditions.

Two-thirds of shops, 48 in total, will be randomly assigned to receive leaflets promoting the tested flour for a week at the time the tested flour is launched. At half of these shops, leafleting will be repeated at four-week intervals (intensive marketing). Through this marketing intervention, researchers aim to evaluate the impact of information on consumer

behavior over three distinct time periods: during, weeks after, and several months after an informational campaign.

Half of the shops assigned to the marketing intervention (including half of those assigned to receive intensive marketing) will also be assigned to a discount group. These shops will be asked to offer customers a one-month discount for the tested, labeled, flour at the time the product is launched. This will allow researchers to measure the long-term impact of temporary discounts on consumer behavior over the longer-term.

Customers at each participating shop will be interviewed before the intervention and nearby market where unbranded flour is sold and again at the end of the study period about their purchases. This customer-level data will complement the shop-level data on sales and shed light on the socio-economic profile of customers who purchase the tested flour in each treatment group.

Results and Policy Lessons

Results forthcoming.

Sources

1. Liu, Y. and F. Wu. (2010). Global Burden of Aflatoxin-Induced Hepatocellular Carcinoma: A Risk Assessment. *Environmental Health Perspectives*. 118(6): 818–824.

2. IITA (2009). Accessed August 24, 2013 at: http://www.iita.org/maize

3. Water Efficient Maize for Africa (2010). Reducing Maize Insecurity in Africa: the WEMA Project.
Policy Brief of the African Agricultural Technology Foundation (AATF) and the Kenya Agricultural Research Institute (KARI). Accessed 17 February 2014
at http://wema.aatf-africa.org/publications/policy-briefs

4. Gathura, G. “Study finds 65 p.c. of flour unfit for eating.” Daily Nation. March 16, 2011. Accessed December 15, 2014
at http://www.nation.co.ke/News/Study+finds+65+pc+of+flour+unfit+for+eating+/-/1056/1127586/-/amo111z/-/

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