

Evidences

Study #3184

Contributing Projects:

- P339 - Better evidence on foodborne disease in target regions

Part I: Public communications

Type: OICR: Outcome Impact Case Report

Status: New

Year: 2019

Title: Maize millers in Kenya adopt a quality control approach to testing maize for aflatoxins ensuring safer maize is available for 10 million Kenyan consumers

Short outcome/impact statement:

The Aflatoxin Proficiency and Testing and Control in Africa (APTECA) program has improved the way maize millers in the Kenya Cereals Association measure and manage aflatoxin risk. This has meant that maize products introduced into Kenyan markets do not exceed maximum aflatoxin levels, improving food safety for about 10 million consumers. APTECA was hosted from 2014-2016 by the Biosciences eastern and central Africa - International Livestock Research Institute Hub and has collaborated with IFPRI on research that informed implementation.

Outcome story for communications use:

A critical issue in improving food safety in low- and middle-income countries through market-led food systems is to make safe food more available and accessible for consumers. A major staple in eastern and southern Africa is maize. The main food safety concern for food maize supply is aflatoxins. To support maize millers in Kenya to measure aflatoxin levels in maize, the Aflatoxin Proficiency and Testing and Control in Africa (APTECA) program was established. Starting in 2014, maize millers belonging to the Kenya Cereals Association, who represent 80% of maize milling capacity in Kenya and have 10 million consumers, participated in a voluntary public-private partnership program with an APTECA testing lab, based at the Bioscience East and Central Africa hub at the International Livestock Research Institute with technical support from the University of Texas A&M AgriLife Research initiative.

APTECA deploys a quality systems approach to testing to measure and manage aflatoxin risk. The testing system includes laboratory testing procedures with known controls, routine proficiency testing and independent verification of results. The millers' aflatoxin testing capacity is supported to meet International Organization for Standardization (ISO) requirements to accurately measure aflatoxin contamination in whole maize and flour.

In establishing APTECA, some practical questions about implementing the quality systems approach. IFPRI worked with partners on studies involving monitoring, testing compliance and sampling requirements [1]. A third collaboration was a joint evaluation of aspects of APTECA's model of co-regulation and the role of self-compliance (unpublished).

Another critical question addressed by IFPRI and partners was whether consumers would pay more for maize meal that had been certified as aflatoxin-safe? A randomized study evaluated the impact labelling products with the APTECA logo had on sales [2]. The promotion of an APTECA logo increased sales of the labelled brand of flour by 20% when linked to a randomized social marketing campaign was active. These studies illustrate combinations of innovations, institutional arrangements and policy in A4NH's food safety portfolio to improve food safety and facilitate trade in Africa.

Links to any communications materials relating to this outcome:

- <https://tinyurl.com/y7ukwreu>
- <https://tinyurl.com/yc9mcmor>
- <https://tinyurl.com/ydg9m4tw>

Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies : No

Stage of maturity of change reported: Stage 1

Links to the Strategic Results Framework:

Sub-IDs:

- Reduced biological and chemical hazards in the food system
- Increase capacity of beneficiaries to adopt research outputs

Is this OICR linked to some SRF 2022/2030 target?: Too early to say

Description of activity / study: <Not Defined>

Geographic scope:

- National

Country(ies):

- Kenya

Comments: <Not Defined>

Key Contributors:

Contributing CRPs/Platforms:

- A4NH - Agriculture for Nutrition and Health

Contributing Flagships:

- F3: Food Safety

Contributing Regional programs: <Not Defined>

Contributing external partners:

- BecA - Biosciences eastern and central Africa
- Texas A&M University
- WMU - Western Michigan University

CGIAR innovation(s) or findings that have resulted in this outcome or impact:

The innovation is a quality control approach for testing maize for aflatoxin combined with commercial labeling of maize meal products as aflatoxin-safe. IFPRI has worked with researchers at Texas A&M University and Western Michigan University, on studies that have informed APTECA's recommendations for sampling of maize for aflatoxin testing (Fisher et al. 2019), shown the effect of APTECA's quality systems approach on testing accuracy (Herrman et al. 2020), and tested the impact on sales of a marketing campaign that promoted APTECA's independent verification of aflatoxin test results (Hoffmann et al. forthcoming).

Innovations:

- 1435 - Quality control approach for testing maize for aflatoxin combined with commercial labeling of maize meal products as aflatoxin-safe (<https://tinyurl.com/2j5lycpr>)

Elaboration of Outcome/Impact Statement:

The Aflatoxin Proficiency and Testing and Control in Africa (APTECA) program has improved the way maize millers in Kenya measure and manage aflatoxin risk. Mills participating in APTECA currently represent around 80% of the milling capacity of the maize milling sector [1]. This has meant that maize products introduced into Kenyan markets do not exceed maximum aflatoxin levels, improving food safety for about 10 million consumers.

In 2014, Texas A&M AgriLife Research introduced the APTECA program while hosted by the Biosciences eastern and central Africa - International Livestock Research Institute (Beca-ILRI) Hub. APTECA deploys a quality systems approach to measure and manage aflatoxin risk within the formal maize milling sector in Kenya through a public private partnership. Cereal millers who participate in the voluntary program manage aflatoxin risk by improving their quality systems to accurately measure aflatoxin contamination in whole maize and flour. Participation in the APTECA program improves aflatoxin testing accuracy through qualification of the mill's laboratory analysts; use of working controls with a known level of aflatoxin; routine proficiency testing; and verification of mill results by the International Organization for Standardization (ISO) accredited Texas A&M AgriLife laboratory at the University of Nairobi. APTECA addresses the need for improved aflatoxin testing capacity in Kenya.

In addition to hosting the APTECA lab for two years, APTECA collaborated with IFPRI on two different studies that informed how APTECA was implemented [1, 2]. A third collaboration was a joint evaluation of aspects of APTECA's model of co-regulation. Co-regulation involves firms with regulatory oversight, in the monitoring of their own compliance with standards. It has been adopted by regulators in high-income countries as an efficient approach to achieving compliance. The recently published study evaluated the impact labelling products with the APTECA logo (signalling it was aflatoxin tested and safe) had on sales. The evaluation found that the promotion of an APTECA logo increased sales of the labelled brand of flour by 20% while the randomized social marketing campaign was active [3]. Collaborations and studies like this are part of the aims of A4NH's food safety portfolio to improve food safety and facilitate trade in Africa.

References cited:

1. Herrman, T.J., V. Hoffmann, A. Muiruri, C. McCormick, 2020. Aflatoxin Proficiency Testing and Control in Kenya. *Journal of Food Protection*, 83(1), pp.142-146.
2. Fischer, K., Herrman, T.J., Hoffmann, V. and Lee, K.M., 2019. Variance Structure of Aflatoxin Contaminated Maize in Incoming Trucks at Commercial Mills in Kenya. *Journal of Regulatory Science*, 7, pp.1-5.
3. Hoffmann, V., Moser, C. and Herrman, T.J., forthcoming. Demand for aflatoxin-safe maize in Kenya: Dynamic response to price and advertising. *American Journal of Agricultural Economics*.

Quantification: <Not Defined>

Gender, Youth, Capacity Development and Climate Change:

Gender relevance: 0 - Not Targeted

Youth relevance: 0 - Not Targeted

CapDev relevance: 1 - Significant

Main achievements with specific **CapDev** relevance: As described in the case report, the APTECA program has been successful in increasing the capacity of Kenyan millers to measure and manage aflatoxin risk in maize, and as a result, deliver safer maize products to consumers. Joint research between APTECA and IFPRI has informed APTECA's recommendations for sampling of maize for aflatoxin testing, showed the effect of APTECA's quality systems approach on testing accuracy, and tested the impact on sales of a marketing campaign that promoted APTECA's independent verification of aflatoxin test results. These CGIAR studies helped improve the way the program is implemented, indirectly contributing to improving capacity.

Climate Change relevance: 0 - Not Targeted

Other cross-cutting dimensions: NA

Other cross-cutting dimensions description: <Not Defined>

Outcome Impact Case Report link: [Study #3184](#)

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