

MULTI-FUNDER INITIATIVE

Cultivate Africa's Future (CultiAF)

Reducing maize-based aflatoxin contamination and exposure in Zimbabwe

Researchers will partner with government and the private sector in Zimbabwe to address the dangers posed by aflatoxins. These naturally occurring toxic substances, produced by fungi on maize, impair development in early childhood and have other important impacts on human health. New storage technologies and community education will be tested to tackle aflatoxin contamination in maize and to reduce human exposure, particularly in young children.

The challenge

In Zimbabwe, testing of harvested maize has revealed high levels of contamination by aflatoxins, natural toxins produced by certain fungi that can infect maize and other crops, both in the field and during storage. Consumption of contaminated grain can affect human health: babies are also at risk through their mother's breast milk. In young children, aflatoxins can cause stunting, poor cognitive development, and greater susceptibility to infectious diseases. And while various technologies have been developed to reduce post-harvest losses, their effectiveness in reducing aflatoxin contamination in grain and exposure in humans is poorly understood.

The research

The project is investigating the efficacy of two storage technologies in reducing maize grain contamination. Working in the Makoni and Shamva districts of Zimbabwe, selected households will be assigned to either an intervention group or a control group. Intervention households will receive airtight metal storage silos or thick plastic 'super bags' in which to store their grain. The control households will continue using traditional storage techniques. Researchers will assess the extent of aflatoxin contamination in grain stored by both groups and levels of exposure in mothers and children. If found to be effective, the metal silos and super bags will be provided to all the farmers in the study.

Once trained, male and female artisans will make metal silos and other private sector partners will increase the availability of improved grain storage containers. Researchers will work with the Ministry of Health and other stakeholders to promote the technologies. Currently there are no stringent monitoring programs or regulations governing the presence of aflatoxins in food products in Zimbabwe: the research will inform the development of such procedures and regulations as a matter of priority.

Expected outcomes

- Increased adoption of innovative grain storage technologies by smallholder farmers
- Reduced aflatoxin contamination in stored grain through improved storage practices
- Reduced exposure of infants, women of child bearing age, and others to aflatoxins
- Improved capacity of local artisans and agro-dealers to supply storage technologies
- Increased awareness of government stakeholders, non-governmental organizations, and donors in Zimbabwe of the importance of effective aflatoxin management

Implementing partners:

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Other partners:

International Maize and Wheat Improvement Center (CIM-MYT); Mechanisation and Irrigation Development, Ministry of Agriculture, Zimbabwe; Ministry of Health and Child Care, Zimbabwe; local small- and medium-sized enterprises

Countries: Zimbabwe

Funding: CA\$ 2,055,600

Duration: October 2014 to March 2017

Cultivate Africa's Future Fund (CultiAF) supports research to achieve long-term food security in Eastern and Southern Africa. Learn more at www.idrc.ca/cultiaf.



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