POLICY BRIEF

Aflatoxin Control in Food and Feed: The Policy Options for Ghana

AGRA Growing Africa's Agriculture

NSCAC National Steering Committee for Aflatoxin Control

FARA Forum for Agricultural Research in Africa

MINISTRY OF FOOD & AGRICULTURE REPUBLIC OF GHANA

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Background

Food safety has become an important public health concern and many governments have put in place measures to manage the risks. A major food safety concern in Ghana and many African countries is aflatoxin contamination in food and feed. Aflatoxins are harmful toxins produced by certain species of fungi or moulds that grow naturally on foods. These fungi infect food products either on the farm or during storage and handling under certain favourable conditions such as high temperature, high moisture, delayed harvesting, long periods of droughts, and presence of pests. Aflatoxin contamination is highly prevalent in Ghana and mostly affects staple foods such as raw and processed products from maize, groundnuts, sorghum, millet, *kokonte* (dried partially fermented cassava), spices as well as animal products such as meat, milk, fish, and eggs.

Aflatoxin is a potent cancer-causing agent that is known to cause about 30% of liver cancer in humans, and impairs liver function. The World Health Organisation estimates that in 2014, Ghana recorded 1,923 liver cancer cases and this increased to 2,753 in 2018 according to the GLOBOCAN statistics. In a 2012 study, liver cancer was found to be the commonest type of cancer among Ghanaian males representing 21.1% of all cancers. Chronic exposure to aflatoxins is also linked to decreased protein synthesis, delayed recovery from kwashiorkor, immune suppression, increased susceptibility to infections, and growth retardation and stunting in children. Aflatoxins can cause weight loss, various health conditions, and death in livestock and cultured fish fed with contaminated feed. Poultry birds fed with aflatoxin-contaminated feed often lay 70% fewer eggs than those on safe and wholesome diets. Aflatoxins pose a barrier to trade due to the rejection of contaminated products by importing countries. In Ghana, aflatoxin contamination accounts for losses of about 319,000 tonnes or 18% of Ghana's annual maize production.
Globally, efforts are being made to develop measures for controlling aflatoxins and its health and economic effects. These measures include pre-harvest and post-harvest strategies. The pre-harvest strategies include breeding aflatoxin-resistant crop varieties and biological control using non-toxic strains of fungi. Other pre-harvest strategies are good agricultural practices such as crop rotation, adoption of drought and disease-resistant crop varieties, planting of treated and healthy seeds, disease and pest control, and timely harvesting. The post-harvest strategies for controlling aflatoxin are rapid and adequate drying after harvesting crops, cleaning and sorting mouldy grains, storing products under proper storage conditions, pest control as well as heat and chemical treatment. Other recommended strategies are enforcement of standards and regulations, diet diversification, and post-exposure management, which entails the use of certain substances that bind aflatoxin in the gut and inhibit its uptake.

Rational for a National Policy on Aflatoxin Control in Food and Feed

The African Union Commission has recognised the detrimental effects of aflatoxins and established the Partnership for Aflatoxin Control in Africa (PACA) in 2011 to help address the problem. PACA has elaborated a 10-year Strategy (2013-2022) to guide its actions and supported ECOWAS to develop the ECOWAS Aflatoxin Control Action Plan (ECOACAP) that was adopted in November 2015 by the ECOWAS Agricultural Ministers. PACA is currently supporting six pilot countries (Nigeria, Gambia, Senegal, Tanzania, Uganda, Malawi) to develop systems for the control of aflatoxins.

During the first and second PACA partnership platform meetings held in Addis Ababa (2014) and Entebbe (2016) respectively, country teams were tasked to develop action areas for aflatoxin control. Key action areas for Ghana were to:

- Establish a National Steering Committee
- Conduct a situational analysis of the extent of aflatoxins problem in the country
- Develop a national action plan for aflatoxin control
- Mobilise resources for the implementation of prioritised actions in the action plan.

Based on these action areas, funding was secured by the Science and Technology Policy Research Institute of the Council for Scientific and Industrial Research (CSIR-STEPRI) in collaboration with the Plant Protection and Regulatory Services Directorate of the Ministry of Food and Agriculture (PPRSD-MOFA) for the development of a national policy and technical regulation for aflatoxin control in food and feed.

Some institutions in Ghana have been implementing projects and activities for aflatoxins management. However, these projects are often fragmented and poorly coordinated leading to insignificant impacts and inefficiencies in resource utilisation. It is therefore critical to harness the collective skills and strengths of various stakeholders and institutions for the efficient management of aflatoxin contamination in Ghana. This could be achieved through the development and implementation of a national policy, which prescribes options, technical approaches, operational activities and roles, and responsibilities for each stakeholder. There are a number of national policies that contribute in part or even tangentially, to broadly defining the policy context within which a system for aflatoxin control and management can be established. Though most of them do not specifically detail the strategies or steps for aflatoxin control, they outline the policy direction along which an aflatoxin control and management system can be elaborated.

Vision and Goal of the National Policy on Aflatoxin Control in Food and Feed

The vision of the National Policy for Aflatoxin Control is to improve harmonisation and coordination of activities among all stakeholders for effective management and control of aflatoxins in food and feed. The goal of the policy is to protect human and animal health and increase the income of food value chain actors by reducing aflatoxin contamination in food and feed.

Policy Options for Aflatoxin Control in Ghana

1. Facilitate the development, harmonisation and enforcement of policies, legislations and standards for aflatoxin control

Comprehensive policies, standards and regulations for the management of aflatoxins in food and feed based on local contexts are lacking. Standards exist only for a few products intended for human consumption while some are under development. Considering the fact that most of the products susceptible to aflatoxin contamination are staple foods, there is a need to develop standards that indicate acceptable aflatoxin levels in the food products based on national contexts and consumption patterns. Also, with the exception of poultry feed, no national limits have been set for aflatoxins in the feeds for livestock and fish. There is limited evidence-based information to influence policy decisions and inadequate structures and support for the implementation of existing aflatoxin-related laws, regulations, policies, and standards. Furthermore, value chain actors have limited awareness and understanding of the requirements of standards, policies, and regulations. There is inadequate data on actors within the value chain, especially those in the informal sector, which makes inspection and enforcement difficult. There is therefore an urgent need to address these and other issues by facilitating the development, harmonisation, and enforcement of policies, regulations, and standards for aflatoxin control.

2. Increase public awareness, advocacy, communication and demand for aflatoxin-safe food and feed

Awareness about aflatoxins is generally low. This hampers initiatives to decrease contamination along value chains, reduce consumption of contaminated foods, create an enabling policy and institutional environment, and ensure that aflatoxins receive the needed attention and investments. It is therefore imperative for scientists and communication specialists to work together to develop clear, evidence-based, actionable messages and

information targeted at specific audiences. Such messages and information must be delivered using the media, channels, and language most appropriate and accessible to the target audience. In doing so, care needs to be taken to avoid causing fear and panic among the public. The huge increase in access to communication channels, such as mobile phones, television, FM radio stations, the internet, and social media offers good opportunities.

3. Strengthen research and technology transfer on aflatoxins

Research is needed to generate new technologies and provide solid evidence to support informed decision-making with regard to better aflatoxin prevention and control. However, research initiatives on aflatoxins are inadequate with many of them often fragmented and uncoordinated. Moreover, weak linkages exist between researchers or technology developers and end-users. There is, therefore, a need for better targeted and coordinated research that involves end-users from the onset. Specifically, research is critical on how to (a) prevent aflatoxin contamination; (b) detect contamination in foods; (c) prevent human exposure to contamination; (d) detect human, livestock and fish exposure; and (e) minimise health impacts post-exposure. Adequate capacities are also needed to enable actors to take effective actions to combat aflatoxins. It is thus critical to strengthen research and technology development and transfer on aflatoxins through various actions.

4. Strengthen surveillance systems for the detection of aflatoxin-related foodborne diseases

A major problem that hampers aflatoxin management is the limited capacity for monitoring, reporting and communicating about aflatoxin-related diseases. There is an inadequate health-related database to inform policy and regulations. So, the establishment of a database for the country is required. In Ghana, risk assessment and monitoring systems for aflatoxins do not fully operate to gather information needed to guide policy decisions and interventions. Therefore, there is a need to strengthen risk assessment, disease monitoring and communication.

5. Develop mechanisms for strengthening consumer protection

An environment that affords protection to consumers and promotes fair trade is important for the development of functioning markets and consumer welfare. However, a limited number of food safety-oriented consumer organisations have been set up in Ghana and are involved in advocacy on food safety. Besides, there is limited consumer knowledge in food safety and aflatoxin issues as well as consumer rights and responsibilities. Furthermore, inadequate interactive platforms exist for consumers to demand information or seek redress from experts, policy makers and regulatory authorities. This is compounded by increasing consumers' access to conflicting and unauthentic information mostly from social media and the internet. It is important to promote the role of consumer associations in ensuring the accountability of government and industries with regard to food safety, dissemination of information related to food safety, and implementation of national food safety programmes.

6. Increase domestic and international trade in aflatoxin-safe food products

Currently, most producers and processors have limited access to high-value markets (e.g. food industry and export markets) due to aflatoxin contamination. This is partly due to the low awareness of aflatoxin, its effects on humans and animals and its prevention or reduction among value chain actors and consumers. Also, inadequate infrastructure exists for the management of aflatoxins while technologies for controlling aflatoxins are expensive. Even where the value chain actors make the effort to prevent or reduce aflatoxin contamination, there are often inadequate incentives for them to continue to produce and sell aflatoxin-safe food and feed products. The high level of aflatoxin contamination and limited access to trade opportunities are also the results of (a) inadequate inspection and monitoring of aflatoxin levels in products

on domestic markets, (b) the high cost associated with product testing, registration and certification, (c) poor hygienic conditions and bad food handling practices along the value chain (e.g. farm, market, homes) as well as poor sanitary conditions in most markets. It is important to increase domestic and international trade in aflatoxin-safe food products by addressing the challenges enumerated above.

7. Mobilise resources for aflatoxin-related activities

There is a need for adequate investments to support the implementation of the National Aflatoxin Control Policy and Action Plan (NACPAP). There are opportunities that suggest potential access to funding if adequate efforts are made. These opportunities include (i) willingness of international donors, development partners, and multinational organisations to fund food safety and health-related projects, ii) availability of national policies, strategies, and acts that promote food safety and related issues, and (iii) availability of continental and regional institutions such as the African Union Commission (AUC), African Union Development Agency (AUDA-NEPAD), and ECOWAS that are prioritising food safety and particularly aflatoxins in their programmes. There is, therefore, a need to promote collaborations with development partners and multinational organisations for short and long-term funding. It is also critical to increase domestic resource mobilisation through budget allocations for aflatoxins activities in relevant Ministries, Departments and Agencies (MDAs) and other national initiatives. It is important to encourage and support public-private partnerships to increase investments for aflatoxin management.

RECOMMENDATIONS

- The National Policy for Aflatoxin Control in Food and Feed comes along with a comprehensive action plan. To facilitate the implementation of this policy and action plan, a National Steering Committee for Aflatoxin Control (NSCAC) has been established to among others lead both domestic and international resources mobilisation efforts, spearhead awareness creation on aflatoxins among policy makers and other stakeholders, facilitate coordination of aflatoxin activities among various MDAs, and ensure the implementation of the National Policy for Aflatoxin Control.
- Effective implementation of this policy will require actions from key ministries such as Ministry of Food and Agriculture (MOFA); Ministry of Trade and Industry (MOTI); Ministry of Health (MOH); Ministry of Environment, Science, Technology, and Innovation (MESTI); and Ministry of Finance.
- It is highly recommended that these ministries take ownership of the policy and work in a coordinated manner to ensure full implementation of the strategies and actions outlined in the action plan.
- Private sector, Civil Society Organisations (CSOs), development partners and other domestic and international organisations are encouraged to support the implementation of the actions prescribed in the action plan to ensure the achievement of the overall goal of the policy.
- Mainstream relevant aspects of the national policy for aflatoxin control in existing and draft policies such as the
  - Coordinated Programme of Economic and Social Development Policies
  - Food and Agriculture Sector Development Policy
  - National Trade Policy
  - National Health Policy
  - National Nutrition Policy
  - National Strategy for Cancer Control
  - National Food Safety Policy
  - National Aquaculture Development Plan
  - Ghana Livestock Development Policy and Strategies
  - Science, Technology and Innovation Policy

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About FARA

The Forum for Agricultural Research in Africa (FARA) is the apex continental organization responsible for coordinating and advocating for agricultural research-for-development. (AR4D). It serves as the entry point for agricultural research initiatives designed to have a continental reach or a sub-continental reach spanning more than one sub-region.

FARA serves as the technical arm of the African Union Commission (AUC) on matters concerning agricultural science, technology and innovation. FARA has provided a continental forum for stakeholders in AR4D to shape the vision and agenda for the sub-sector and to mobilize themselves to respond to key continent-wide development frameworks, notably the Comprehensive Africa Agriculture Development Programme (CAADP).

FARA's vision is; "Reduced poverty in Africa as a result of sustainable broad-based agricultural growth and improved livelihoods, particularly of smallholder and pastoral enterprises" its mission is the "Creation of broad-based improvements in agricultural productivity, competitiveness and markets by strengthening the capacity for agricultural innovation at the continental-level"; its Value Proposition is the "Strengthening Africa's capacity for innovation and transformation by visioning its strategic direction, integrating its capacities for change and creating an enabling policy environment for implementation". FARA's strategic direction is derived from and aligned to the Science Agenda for Agriculture in Africa (S3A), which is in turn designed to support the realization of the CAADP vision.

About FARA Policy Brief Series (FPB)

FARA Policy Brief Series (FPB) is an online organ of the Forum for Agricultural Research in Africa (FARA). It aims to promote access to Science, Technology and Innovation (STI) knowledge based on a concise summary of an African Agricultural Research for Development (AR4D) related issue, the policy options to deal with it, and some recommendations on the best option. It is aimed at government policymakers and others who are interested in formulating or influencing policy.

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