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Food safety hazards can be biological, chemical or physical agents in food. Pathogenic microorganisms that cause diseases such as cholera are biological hazards, which include bacteria and viruses. Aflatoxins, preservatives above allowable limits, pesticides used in vegetables and veterinary drugs are examples of chemical hazards. Physical hazards on the other hand, are foreign substances which can physically injure the consumer during food consumption, such as bones in fish fillet. These hazards are known to occur at any stage of the food chain, implying that adequate control is essential to ensure food safety.

According to the World Health Organization (WHO), approximately 600 million people fall ill and 420,000 die annually globally from consuming contaminated food. A 2015 WHO report on the global burden of foodborne diseases, indicates that the real tragedy of foodborne diseases is played out in developing countries. Unsafe water, poor production processes, inappropriate use of agricultural chemicals, improper food storage and poorly enforced regulatory standards contribute to a high risk food safety environment. The rise of cancer, liver and kidney diseases have also been attributed to the diet, specifically related to chemical contaminants in food.

Collaboration of food operators, from primary producers (crop and livestock farmers), manufacturers of food and food packaging materials, transporters and distributors, manufacturers of chemicals used in the food industry, processing equipment manufacturers and retailers such as supermarkets, who handle food and offer ready to eat food, is critical in ensuring food safety.

Considering the recent food safety incidences involving products processed in Kenya such as presence of aflatoxin in peanut butter and maize flour and high levels of sodium metabisulphite in meat, it is imperative that the food industry implements a risk-based approach, to give an assurance of food safety to consumers.

A key step in ensuring food safety, is for food operators to implement food safety
A key step in ensuring food safety, is for food operators to implement food safety management systems like the ISO 22000 and the ISO 22002 which are based on Hazard Analysis and Critical Control Points (HACCP) principles.

Kenya Bureau of Standards (KEBS) develops food standards which provide guidelines on limits of food safety hazards allowed based on Codex guidelines, which food manufacturers must comply with. These guidelines are applied in testing and certification of products through the product certification scheme run by KEBS, allowing manufacturers to offer these products for sale. The standards also guide the inspection and testing of imported products to ensure their safety.

KEBS, through its Certification Body (CB) additionally offers voluntary management systems certification to ISO and Kenya standards. KEBS CB is accredited to offer certification by the Dutch (Netherlands) Accreditation body (RvA) and Kenya Accreditation Service (KENAS), and is licensed by the Food Safety System Certification (FSSC) Foundation. These bodies assess the certification processes, to give an assurance that they meet international standards. Among the food safety certifications offered by the KEBS CB are: FSSC 22000; ISO 22000; HACCP and food hygiene certification for catering establishments.

A major incentive to implementing a food safety management system for an organization is the systems’ ability to enable a food business operator to consistently provide safe products that meet customer and legal requirements. This results in reduced customer complaints and increased trust of product brands, leading to increased sales and higher profit margins.

The writer is a Principal Certification Officer, at the Certification Body of Kenya Bureau of Standards.

For more information, please submit your System Certification Enquiries at: https://www.iafcertsearch.org/certification-body/eb2e23bc-e1e0-5c33-9352-3c2e19e08f2d
Prevention of aflatoxin contamination key for food and feed safety

By Christine Kalui

Aflatoxin contamination in Kenya has always been a complicated issue because of the numerous ways through which it can occur. It must, however, be confronted with urgency because of the grave danger it poses to human health. Aflatoxin formation can be triggered by many factors ranging from erratic weather patterns, poor soil fertility, poor crop husbandry to improper storage. Aflatoxins are not only ingested by directly consuming contaminated grains, but also through intake of animal products like milk obtained from animals that have consumed contaminated feeds. Aflatoxins can therefore be passed on along the food chain.

The World Health Organization (WHO) defines aflatoxins as poisonous substances produced by a group of fungi (molds) that are naturally occurring all over the world. Two closely related species, Aspergillus flavus and A. parasiticus are mainly responsible for producing aflatoxins of public health concern.

Kenya has witnessed periodic incidences of acute aflatoxin poisoning dating back to 1981 when approximately 16,000 turkeys died due to consumption of aflatoxin contaminated groundnut feeds. In 2004 and 2005 aflatoxicosis outbreak resulted in nearly 500 acute illnesses and the death of 200 people. In 2010, 2.3 million bags of maize grown in the Eastern and Coastal regions of Kenya were declared unfit for human consumption due to high levels of aflatoxin contamination. A declaration of food as unfit for human consumption is not only a food safety issue, but also a food security concern for the country.

According to WHO, aflatoxins are potent carcinogens and long-term or chronic exposure affects all organs especially the liver and kidneys. They can also cause birth defects, stunted growth in children and even immunosuppression, hence decreasing resistance to infectious agents such as HIV and tuberculosis.

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The key to tackling aflatoxin contamination of food is in observing control measures both before and after harvest. For this to be effective there is need for an all-inclusive linked approach, whereby the contamination reduction strategies are implemented coherently and systematically by the different actors along each step of the value chain.

In Kenya, for instance the maize supply chain is complex and involves many stakeholders, including seed companies, research institutions, farmers, traders, wholesalers, retailers, posho millers and large-scale millers. In this kind of a scenario, the prevailing fragmented approach to aflatoxin control poses a key challenge to implementing solutions to mitigate the impact or prevent aflatoxin contamination. There is need for development of deliberate strategies that enhance controls within this complex set up of supply chain.

Pre-harvest aflatoxin contamination can be managed through strategies that result in enhancing the ability of the crop to resist fungal infection and/or preventing production of aflatoxins by the invading fungus. Currently seed selection is done based on potential productivity. For pre-

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harvest aflatoxin control seed developing companies may additionally consider pest resistance, disease and drought tolerance, husk cover and flintiness of the grain.

Storage of produce is also a key challenge particularly for the small scale farmers. There is need for fervent awareness creation and promotion of good storage practices as well as discouragement of improper ones such as storage under conditions that favor mold growth, especially warm and humid storage environments, piling of maize cobs against each other at harvest which increases temperatures that result in favorable conditions for the fungus to thrive. It is recommended that maize cobs should be spread evenly on surfaces that prevent maize contact with soil to ensure effective drying over shorter periods while preventing additional contamination. Also recommended is use of well-ventilated storage structures and hermetic bags to control moisture and pests which enhance fungal growth and aflatoxin production in stored grains.

The post-harvest control involves different players including farmers, bulking and storage operations, warehouses, distributors, wholesalers, cereal millers including posho millers, and traders as well as the consumers.

As a National Standards Body that promotes use of standards for protection of consumer health and facilitate trade, the Kenya Bureau of Standards (KEBS) has published standards on codes of practice for prevention and reduction of aflatoxin contamination, and aflatoxin limits in cereals, nuts and animal feed such as KS CAC RCP 51; KS CAC RCP 59; KS CAC RCP 45; and KS EAS 2 among others.

Through sampling, KEBS officers verify quality control measures that have been put in place by millers during manufacturing in order to demonstrate that Food Safety guidelines are adhered to.

This conformity assessment process recently led to KEBS banning the sale and consumption of several maize flour and peanut butter brands that were found to have high levels of aflatoxins, above the standard specifications limits. The challenge to enforcing the food safety standards is that these standards are only implemented in the formal marketing channels, yet most maize and other nuts and grain in Kenya are sold through informal marketing systems.

There is need to promote an inter-agency engagement, involving all the stakeholders to implement standards in the food supply chain right from planting, harvesting, drying, storage and packaging to eliminate aflatoxin contamination and ensure food and feed safety. Capacity building of farmers and other stakeholders on standards, good agricultural practices, Codes of Practice and post-harvest handling will assist in reducing the risk of aflatoxin contamination in the food value chain.

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KEBS moves to enhance quality and safety of animal feed with new standards

Twenty-Four Standards to facilitate the production of safe and quality products of animal origin are now available, says the Kenya Bureau of Standards (KEBS).

The enhanced specifications were developed to support the growing demand for proteins of animal origin which has led to intensified livestock production and subsequent use of selected feed grains and fodder seeds.

“The Standards will address variety specifications, formulations and terms used in animal feedstuffs, methods of tests for important quality and safety parameters for oilseed by-products (used as raw materials for animal feeds), fertilizers and cereals/pulses,” says Lt. Col (Rtd.) Bernard Njiraini, Managing Director, KEBS.

The Standards will also provide specifications for potato flakes and cotton seed and application of molecular biomarkers for detection of adulteration of food and feed even when the element of detection is present in very small amounts.

According to the Food and Agriculture Organization of the United Nations (FAO), the consumption of animal products continues to rise worldwide and has driven demand for animal feed products hence critical to ensure that feed safety is guaranteed across the chain. Recent contamination episodes have raised attention on the importance of ensuring feed safety and on the need to prevent and control the presence of hazards, such as dioxin, aflatoxins and other undesirable substances.

To access a full list of the Standards approved or confirmed by the National Standards Council, please visit KEBS website www.kebs.org

We encourage the general public to “Wajibika Na KEBS” and be on the lookout for products suspected to be substandard. Wajibika Na KEBS is a program that allows the public to report cases about substandard products. To Wajibika, verify whether the S Mark permit on your product is valid by sending the code underneath the S Mark to 20023 (SM#Code) to get product validity status details. If the details are different, report to KEBS Toll Free 1545 during official working hours of 8.00 AM to 1.00 PM and 2.00 PM to 5.00 PM, Monday to Friday.
Food standards, the foundation of achieving food safety

By Peter Mutua

As nations across the world fight the COVID 19 pandemic, one thing is clear, health and safety is number one priority in keeping both our economy and livelihoods thriving.

Reflecting on this year’s World Food Safety Day theme “Food Safety, Everyone’s Business”, we explore the potential benefits food safety standards bring to the economy, made possible by the collaboration of different stakeholders and the dangers posed when they are disregarded.

Ideally, a safe food supply chain contributes to food and nutrition security, supports national economies, trade, and tourism, as well as stimulating sustainable development. However, the globalization of food trade, growing world population and climate change have resulted in rapidly changing food systems. From food production and farming methods to procurement and distribution systems, these changes have influenced food consumption patterns, nutrition and health outcomes.

According to the World Health Organisation (WHO), access to sufficient amounts of safe and nutritious food is key to sustaining life and promoting good health. Research has confirmed that unsafe food containing harmful bacteria, viruses, parasites, or chemical substances can cause more than 200 different diseases – ranging from diarrhea to cancers. Around the world, an estimated 600 million (almost 1 in 10) people fall ill after eating contaminated food each year, resulting to about 420 000 deaths annually.

Improper agricultural practices, poor hygiene at all stages of the food supply chain, lack of or inadequate preventive controls in food processing and preparation, misuse of chemicals, contaminated raw materials ingredients and water are some of the factors which contribute to hazards in food.

Kenya Bureau of Standards (KEBS), as the National Standards Body in Kenya, working together with sector stakeholders develops and provides national food and agriculture standards to the industries involved in agriculture and food production in the country. A wide range of standards focusing on ensuring food safety and quality have been established over time. These standards include guidelines, codes of practice and product specifications. In developing these standards effort is done to ensure the resulting standards are aligned to international food safety codes and practices by the Food and Agriculture Organizations (FAO) as well as the World Health Organization (WHO) while taking into consideration the country’s unique situation and experience. Emphasis has been laid to establishing safe limits related to among other things safe limits related to pesticides and fertilizers, heavy metal contaminants and mycotoxins, safe microbiological limits, safe use of food additives as well as providing specifications for improving nutritional value of products such as food fortification and guidance and codes of practice on safe handling of food from farm to fork.

It is expected that the industries will implement these standards in line with the clarion call on this year’s food safety theme of Food Safety being everyone’s business with KEBS playing its role by ensuring compliance through inspection and certification of the food products against the applicable Kenyan Standards. Industries that are fully implementing the standards other than having no conflict with the regulatory bodies derives the benefits associated with standards including but not limited to reduced litigation risks by the consumers, increase of consumer’s confidence in their products hence building a strong brand name and increase their product’s competitiveness at national, regional and international markets.

Consumer’s role in food safety too cannot be ignored as well. Consumers voice has been centrally placed in ensuring food safety as they have the ultimate power to accept or reject any product offered. KEBS has endeavored to enhance the ability of consumers to play their role requiring manufacturers to apply either the Standardization or Diamond marks on their labels. The consumers are then encouraged to look out and choose only the products whose labels carry either Standardization Mark (S Mark) or Diamond mark. It is the consumer’s responsibility to ensure the products bought are stored appropriately as directed by manufacturers to avoid nutrient loss and prevent the food from contamination which could lead to ill health and by doing that, they will be playing their role under the clarion call – Food Safety, every one’s business.

To increase confidence in these marks and fight counterfeiting of the marks, KEBS has established easy ways of verifying their authenticity by sending the code underneath the S-Mark to 20023 (SM#Code) to get product validity status details. Where details are different, consumers are encouraged to report to KEBS through a Toll Free Number 1545 during official working hours of 8.00 AM to 1.00 PM and 2.00 PM to 5.00 PM, Monday to Friday.

The writer is the Acting Manager, Food, Standards Development