



Q&A

ROUNDTABLE

PARTICIPANTS:

Liz Colebrook
Global Scientific & Regulatory Affairs Director of Food Safety at Mars, Incorporated

Amare Ayalew
Manager of the Partnership for Aflatoxin Control in Africa (PACA)

Jagger Harvey
Director, Feed the Future Innovation Lab for the Reduction of Post-Harvest Loss

The increasing threat of mycotoxin contamination

New Food invites a panel of three industry experts to share their perspectives on this growing devastating hazard...

“At Mars we have always believed that ‘if it’s not safe, it’s not food’.”

Q: Crops rejected due to mycotoxin contamination are often eaten by vulnerable people, leading to significant health problems. Is it better to eat unsafe food than have no food at all?

LC: At Mars we have always believed that ‘if it’s not safe, it’s not food’. For those that are unaware: mycotoxins are a group of toxic compounds that are naturally produced by certain types of moulds (fungi) that grow on widely used foodstuffs such as maize, wheat and peanuts. One group of

mycotoxins, known as aflatoxins, were identified by the World Health Organization as the most dangerous natural chemical food safety hazard, as exposure to even low levels over a long period of time has been shown to result in cancer, immune suppression and other long-term pathological conditions. This demonstrates the scale of the problem we are facing. However, food insecurity, impacting one in three people worldwide, with close to 12 percent classified as experiencing severe food insecurity in 2020, will likely lead to contaminated crops being eaten, exposing billions of people

around the world who are currently without alternative options.

AA: Undoubtedly, food insecurity exposes vulnerable people to mycotoxins because they will be forced to eat what they might otherwise have rejected, even when the food is visibly mouldy and organoleptically unacceptable. However, the choice between eating mycotoxin-contaminated food and no food at all denies vulnerable people a fair opportunity to access healthy and nutritious food. This has been tragically demonstrated in outbreaks from eastern Africa reported as recently as 2019.

The morbidity and mortality due to mycotoxins creates burdens on already stressed health systems and costs developing countries substantial resources. Therefore, consumption of poor-quality contaminated food is not the solution to address food insecurity challenges. One cannot correct a problem with another worse problem, potentially much worse at that.

Q: Developing countries, already struggling with crops blighted by mycotoxins, are ill-equipped to deal with the instability in the global supply chain; what can be done?

AA: Developing countries, especially in Africa, remain a net importer of food from across the world and the instability of the global supply chain markedly disrupts food security. While trade will remain an important factor in improving

consumer choice and access to food, it is critical that developing countries invest in increasing productivity and reducing post-harvest losses to improve food security.

JH: One key lever in reducing those post-harvest losses is global-scale research that targets developing communities. We need to work with local partners to cultivate a diverse innovation pipeline to reduce threats to crops, such as mycotoxins. This work must be informed by multidisciplinary research to ensure the interventions are effective and tailored for sustainable deployment with inclusive benefits; a good example here is the Feed the Future Innovation Labs. In a range of Feed the Future countries in Africa, Asia and Latin America, they have worked with local research leaders and other partners to develop good agricultural practices and innovations that increase productivity and reduce losses, including through reductions in mycotoxin contamination.

LC: It is also important to acknowledge that food safety challenges increase in scale and reach as supply chains become more complex, and this challenges the ability of all those in the supply chain to manufacture and supply safe food, regardless of the country of origin. A holistic approach must be taken to strengthen the supply chain against known and growing threats such as mycotoxins while also monitoring »

“The choice between eating mycotoxin-contaminated food and no food at all denies vulnerable people a fair opportunity to access healthy and nutritious food”

EXPERT VIEW



Giulia Rosar
Mycotoxins Product Manager, Eurofins Tecna

Concerns over climate change and its impact on mycotoxin risks

As conditions change around the world, we may see mycotoxins make their way into areas not previously seen; Giulia Rosar highlights Eurofins Technologies' latest offerings to help keep food and drink safe.

Drought and warmer weather have already led to notable aflatoxins outbreaks in the past, affecting not only tropical and subtropical areas, but also Mediterranean regions. Aflatoxin outbreaks have a direct impact on food quality and accessibility, and the health of livestock and pets. For example, it can impact the milk production chain through cow feed contamination.

Eurofins Technologies supports the safety of the food chain with reliable, accurate, sensitive test kits, both for aflatoxins in vegetal commodities and aflatoxin M1 in milk.

Our researchers recently developed a fast and sensitive immunoassay for total aflatoxin

analysis, capable of accurately measuring aflatoxin concentration, no matter the rate of aflatoxin B1, B2, G1 and G2 in contaminated samples, as demonstrated by in-house validation.

Aflatoxin B1 is known to be the most toxic and common aflatoxin and has been separately regulated by the EU. For a specific aflatoxin B1 analysis in cereals, silages, mash, feed, corn gluten meal, nuts, peanut meal, dried fruits, DDGS, cottonseed and soybean meal, we offer specific diagnostic solutions.

Moving from grains and vegetal commodities to milk analysis, Eurofins Technologies exclusively provides the AOAC-RI PTM-approved method for aflatoxin

M1 quantitative analysis in raw bovine milk, skimmed milk and milk powder. The novel B ZERO AFLA M1 has been improved in terms of specificity and sensitivity, as no matrix effect is recorded and the limit of quantification (LOQ) has been lowered to 15 ng/L. The virtual-master curve allows very easy and cost-efficient dairy screening, which supports small and medium-sized industries in accessing reliable and affordable quality tools.

Eurofins Technologies strives to support food and feed producing companies, husbandries, dairy industries, and public and service laboratories in their need for reliable yet cost-efficient analytical kits for controls.

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The vast majority of farmers in sub-Saharan Africa are smallholders, many of whom are women



“No single entity can solve this challenge alone, we must continue to work together to explore new options”

new and emerging threats such as antimicrobial resistance and microplastics, which must also be effectively and proactively addressed. No single entity can solve this challenge alone; we must continue to work together to explore new options and opportunities to strengthen the whole chain, and in so doing we can help ensure food security for those that need it most.

AA: While managing a global approach to food security there is also more that can be achieved in each region. This includes building on our regional traditional food sources (eg, insect protein, neglected crops) as well as exploring novel foodstuffs to overcome the challenges of dwindling resources. I expect that the way forward will be to tap into a multitude of options, innovations coupled with favourable policies to build resilient food systems that can cater for growing populations.



Dr Amare Ayalew

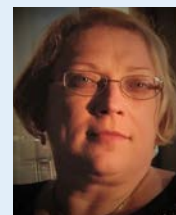
Amare is Manager of the Partnership for Aflatoxin Control in Africa (PACA) at the African Union Commission. Amare has over 30 years of professional experience in mycotoxicology, and more broadly food safety and sanitary and phytosanitary matters. For the past nine years, he has led PACA's strategy, regional and country programmes, as well as its continental and global advocacy and technical work, to bring food safety at the centre of policy dialogues and priorities. Amare led PACA's country-led approach for holistic aflatoxin control piloted in six African countries, now scaling the models developed to address broader food safety challenges in 12 countries. He has also coordinated the development, implementation and validation of the Africa Food Safety Index, which is being tracked by 55 African Union Member States.

Q: Training and education are considered by many to be key to improving agricultural practices in the developing world but what, in your opinion, is the best way to accomplish this and what challenges are we facing?

JH: In-country research and extension capacity lies at the foundation of any sustainable developing-country food system gains. Many extension tools and platforms are available; some showing high scalability and effectiveness at driving adoption. These range from self-employed, expert-supported village-based advisors providing trusted services, to digital extension videos. To ensure sustainability, governments and donors need long-term approaches to establish, support and use capacity beyond single project lifecycles.

LC: I agree, a long-term lens is required to affect real change in a challenge as fundamental as food safety. For example, Mars, through the work of the Mars Global Food Safety Center (GFSC), is developing training that aims to help drive a shift in culture around food quality and safety, helping strengthen the supply chain and address critical food safety challenges. Alongside this, we have developed a series of Good Agricultural Practices (GAPs) that can be applied by smallholder farmers. These have been published in an openly accessible forum; however, the challenge we now face is ensuring that this information reaches the right people in a timely manner, and that the recommendations we make are practical for implementation at the smallholder scale. This is where industry must partner with NGOs and organisations such as PACA (Partnership for Aflatoxin Control in Africa).

AA: Exactly, and as part of that distribution of knowledge, we must also ensure that the information is accessible and packaged in easy-to-understand formats for the target audience.



Liz Colebrook

Liz is Global Scientific & Regulatory Affairs Director of Food Safety at Mars, Incorporated and has more than 35 years' experience in food safety science and regulatory affairs. Liz graduated in Food Science at Reading University and began her food industry career in technical auditing and product development. After entering the world of regulatory affairs during her employment with H J Heinz, Liz joined Mars Petcare as a Legal and Regulatory Affairs Manager in 2001. During her 20 years with Mars, Liz has predominantly worked in the Scientific & Regulatory Affairs arena, completing a Masters in European Food Regulatory Affairs in 2003. In her current role she is responsible for food safety horizon scanning as well as the development of leadership strategy, knowledge and insights relating to food safety regulation.

We must remember that the vast majority of farmers in sub-Saharan Africa are smallholders, many of whom are women with limited access to education. Education should be practical, in local languages, and should build on existing indigenous knowledge that is backed by science and research.

Q: Great strides have been made in tackling the mycotoxin challenge in recent years; what reasons do we have to be optimistic about the future?

LC: I find inspiration in the scale of work that is currently underway to increase our understanding of the mycotoxin challenge and explore new avenues for reducing the risk of contamination. New technologies in prevention, detection and sorting are being tested all along the supply chain and progressed through inter-sector collaboration. Food safety is pre-competitive. I take confidence in the ability to effectively address this challenge by witnessing the elevated level of collaboration between academia, industry, government and NGOs. By working together and openly sharing research, we can progress actionable solutions in this critical area of food safety and help ensure safe food for all.

JH: It is true that our understanding of risk drivers and intervention strategies has evolved significantly, which provides room for optimism; however, mycotoxin contamination is still a largely unaddressed problem. There remains a need for a comprehensive, food system-based strategy, supported by evidence-based policies in countries across the development spectrum, to tackle mycotoxins without unintended consequences,



Jagger Harvey, PhD

Jagger serves as Director of the Feed the Future Innovation Lab for the Reduction of Post-Harvest Loss (PHLIL), at Kansas State University, since he joined the programme in May 2016. His work on addressing fungal toxin (mycotoxin) contamination of crops spans more than two decades, from basic research in graduate school at the University of California, Davis, through to developing and leading various food systems approaches. His work during 2009-2016 as an early member of the Biosciences eastern and central Africa-International Livestock Research Institute (BeCA-ILRI) Hub in Nairobi, Kenya, included establishment of a mycotoxin research platform, which hosted over one hundred African researchers and their international partners, and empowering national breeders to screen for lower aflatoxin susceptibility maize lines. As PHLIL Director, he has worked with the team to ensure that their work is effectively translated into information, interventions and capacity to address post-harvest loss issues in Bangladesh, Ethiopia, Ghana, Guatemala, Honduras, Malawi, Nepal and beyond. Jagger is passionate about integrating efforts to improve food systems, realising inclusive benefits and resilience for farmers and consumers.

such as abandoning or concentrating the worst food with the most vulnerable people.

AA: I have found that in the last decade, generally, there have been improvements in awareness about the mycotoxin problem. This is especially true for Africa where we have seen, at the highest policy level, leaders and political figures prioritising food safety and control of mycotoxins on the continent. For example, the African Union (AU) programme, PACA, works with AU Member States in evidence generation and addressing aflatoxin control and food safety sustainably as part of long-term strategies and frameworks. In the process, we are witnessing unprecedented awareness and commitment to urgently address mycotoxins.

The many efforts at continental and national level are translating to coordinated food safety management and investments on the continent, which makes me hopeful that sooner rather than later Africa will be able to address not only the mycotoxin problem, but the many food safety issues currently undermining the competitiveness of the agri-food sector. ■

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