Mycotoxins can affect staple foods such as maize and sorghum with important consequent food security implications for poor and vulnerable populations.

**FAO mycotoxin sampling tool**

Mycotoxins are toxic metabolites produced by several fungal species of moulds. Under certain environmental conditions, the species that produce mycotoxins can grow on a wide range of agricultural commodities including important staples such as maize and sorghum, and high value commodities such as coffee and cocoa.

**WHY SHOULD WE BE CONCERNED?**

Mycotoxin contamination in food and feed represents an important threat to human and animal health. These toxins are in fact implicated in a wide range of health effects including, liver and kidney damage and the induction of cancer, among others. Recent evidence also suggests that some mycotoxins may be an important contributor to stunting. Consequently, mycotoxins are carefully regulated and their presence in food and feed negatively impacts on both domestic and international trade resulting in significant economic losses. The greatest impact is often on poor, vulnerable, food insecure populations.

**TACKLING THE PROBLEM**

While mycotoxins occur more frequently in areas with a hot and humid climate, favourable for the growth of moulds, they can also be found in temperate zones and thus the problem is a global one. Mycotoxins, like any other food safety issue, cannot be tackled in isolation. Strong inter-sectoral collaboration and support by all involved with the production, processing, trade and consumption of food is critical. This requires commitment of high-level decision-makers to provide the resources and the policy environment necessary to support mycotoxin prevention and control programmes. It also requires that scientific and technical expertise are available at national level to ensure that programmes are well-designed, implemented and their impact monitored.

**WHY A MYCOTOXIN SAMPLING TOOL?**

Monitoring and surveillance systems are essential to any programme for mycotoxin prevention and control. Developing such systems requires knowledge on the design of effective sampling plans. This is a complex task, and the heterogeneity of mycotoxin contamination in food commodities further increases the difficulty of estimating true contamination levels of affected lots. The classification of commercial lots into acceptable and unacceptable categories can only be made correctly if the mycotoxin concentration in the lot can be estimated with a high degree of accuracy and precision.

FAO is regularly contacted by national food safety agencies and by other development partners for guidance on sampling and interpretation of test results to determine and quantify mycotoxin contamination in a range of food commodities. In this context, as part of its technical assistance to developing countries in mycotoxin prevention and control, FAO has developed a Mycotoxin Sampling Tool (available at www.fstools.org/...
mycotoxins) which provides support in analysing the performance of sampling plans, and determining the most appropriate plan to meet user’s defined objectives.

**WHAT CAN THE TOOL DO?**

The mycotoxin concentration of a food lot is usually estimated by measuring the mycotoxin concentration in a small representative sample following a defined protocol – i.e. the mycotoxin sampling plan. The performance of a sampling plan can be improved by modifying the parameters of the plan – the laboratory sample size, the number of laboratory samples of a given size, increasing test portion size, and/or increasing the number of aliquots quantified by the analytical method. The tool facilitates evaluation of the effect of varying sampling plan design parameters, on the performance of the sampling plan, and thus determining the most appropriate mycotoxin sampling plan to minimize risk of misclassifying lots according to needs and resources.


**LOOKING AHEAD: A LIVING TOOL**

Within few weeks of its launch, the tool has drawn the interest of member countries as well as other UN agencies. The tool was recently presented in Lilongwe, Malawi at a joint PACA-COMESA meeting where there was high interest shown by participants, both from public sector and industry. Requests from member countries for training on mycotoxin sampling are frequently received and the tool is providing extremely useful support on this regard.

The tool currently provides guidance on sampling of 26 mycotoxin-commodity combinations, and it is constructed in a way to allow for inclusion of additional mycotoxin-commodity combinations, as well as new functions in future versions.

Interested parties are encouraged to use the tool and provide feedback on how the tool could be possibly expanded in the future.

**FOR MORE INFORMATION CONTACT:**
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