

MAXIMUM LEVEL AND SAMPLING PLAN FOR TOTAL AFLATOXINS IN PEANUTS INTENDED FOR FURTHER PROCESSING

CODEX STAN 209 –1999

Maximum Level ¹

Maximum of 15 µg/kg for total aflatoxins for peanuts intended for further processing, based on a sample size of 20 kg as referenced in the following material obtained from FAO Food and Nutrition Paper 55 (Rome, 1993), "Sampling Plans for Aflatoxin Analysis in Peanuts and Corn".

Sample Collection ²

Wherever possible, it is most appropriate (and convenient) to collect the sample when the selected lots are mobile. The estimation of the true mean aflatoxin content of a stack of sacks, for example, will be facilitated when representative samples are collected during the construction or dismantling of the stack. Similarly, sampling of large shipments of groundnuts can best be performed during the loading/unloading operation. In this situation, it is recommended that representative samples be collected from representative lots from, for example, ships holds, conveyer belts, dockside weighing towers, trucks or barges.

For unprocessed material, each sample should be composed of at least one hundred incremental samples, taken in a representative manner (using a systematic random sampling method), from locations throughout the lot.

Sample Preparation - A hammer mill with a #14 screen (3.1 mm diameter hole in the screen) similar to the type used by the U.S. Department of Agriculture to prepare samples for aflatoxin analysis is specified for peanuts. This choice represents a compromise in terms of cost and precision.

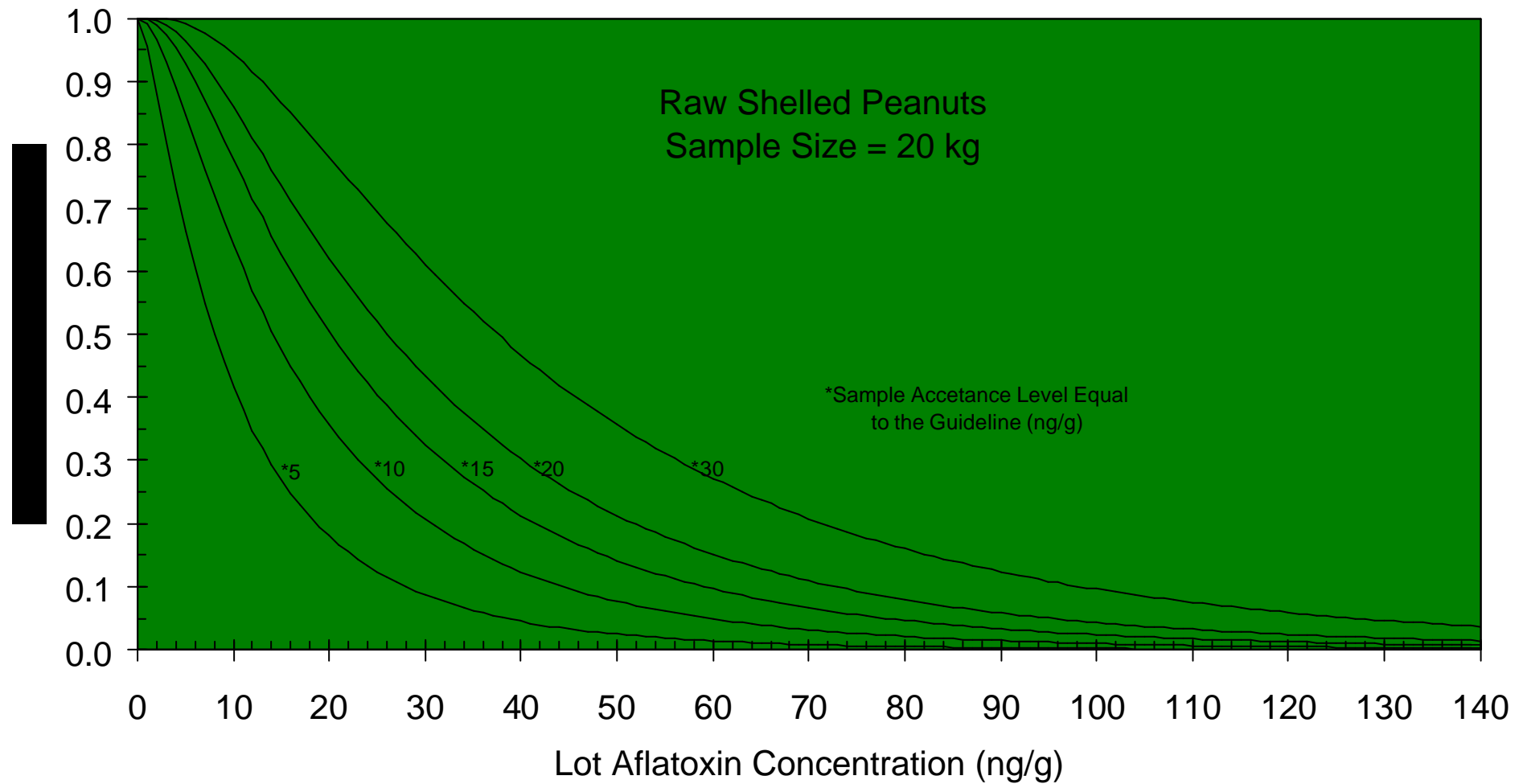
A minimal test portion size of 100 g for comminuted peanuts is recommended. If larger test portions or mills that produce a finer grind are used to prepare the sample, a lower sample preparation variance will result.

Analytical Methods - TLC analytical methods to quantify aflatoxin in the subsample extract are recommended. An extensive survey by Horwitz *et al.* (1993) suggested that TLC represents the most common type analytical method used by analytical laboratories.

¹ The Codex Maximum Level for aflatoxins in peanuts intended for further processing was adopted by the 23rd Session of the Codex Alimentarius Commission, 1999.

² The sampling plan was also adopted by the 23rd Session of the Codex Alimentarius Commission but on an interim basis, with the understanding that the issue would be further considered by the Codex Committee on Food Additives and Contaminants and the Codex Committee on Methods of Analysis and Sampling on the basis of the proposals to be developed by an electronic working group.

The analytical variability, as measured by the coefficient of variation, ranges from about 9 to 82 percent. The variability associated with TLC methods reflects a compromise in the precision capabilities of the various analytical laboratories. If different analytical methods are used or more aliquots are analyzed per extract, the analytical variability can be reduced.



Five operating characteristic curves showing the probability of accepting raw shelled peanut lots when using 20 kg sample kernels, hammer mill for comminution, 100 g test portion, TLC analytical methods, and five sample acceptance levels.