Sampling and sample preparation methods for determining concentrations of mycotoxins in foods and feeds :

Sample variation is often the largest error in determining concentrations of mycotoxins in food commodities. The worldwide safety evaluation of mycotoxins requires sampling plans that give acceptably accurate values for the levels of contamination in specific batches or lots of a commodity. Mycotoxin concentrations show a skewed or uneven distribution in foods and feeds, especially in whole kernels (or nuts), so it is extremely difficult to collect a sample that accurately represents the mean batch concentration.

When sampling is undertaken, it is essential that the following are clearly defined:

- The aim of the sampling exercise .
- The nature of the population being sampled .
- The sampling method .
- The efficiency of the sampling method .
- The sample preparation method.

the sampling plans may vary according to the kind of mycotoxin being analyzed .

Sample Labeling :

Consider the following

- The sample should be labeled with the Material name, history number, date and time of collection, and the initials of the person collecting the sample.
- This information should be identical to that on the test requisition.
- If there is a discrepancy between the name or history number on the sample label and that on the requisition, the sample should not be processed until the difference is resolved.

Storage and Handling the sample:

Consider the following

- Storage Reduce the ability of fungi to survive and grow
- Temperature is an important factor for grain storage
- Cool temperatures (10c°) minimize fungal growth
- Drying: Reduce grain moisture to stop fungal growth and mycotoxin production .

Sampling Procedures :

Sampling is defined as : the process of removing an suitable quantity for testing from a larger bulk, in such a way that the proportion and distribution of the factors being tested are the same in both the whole (lot) and the part removed (sample). The sampling process consists of taking a number of small samples (incremental samples) from a lot of feed or ingredient and pooling them into a large aggregate sample.

Determination of mycotoxin level in food sample is usually accomplished by certain steps:

- sampling
- preparation
- Extraction
- Filtration
- cleanup and detection which is performed by many Qualitative and Quantitative analysis

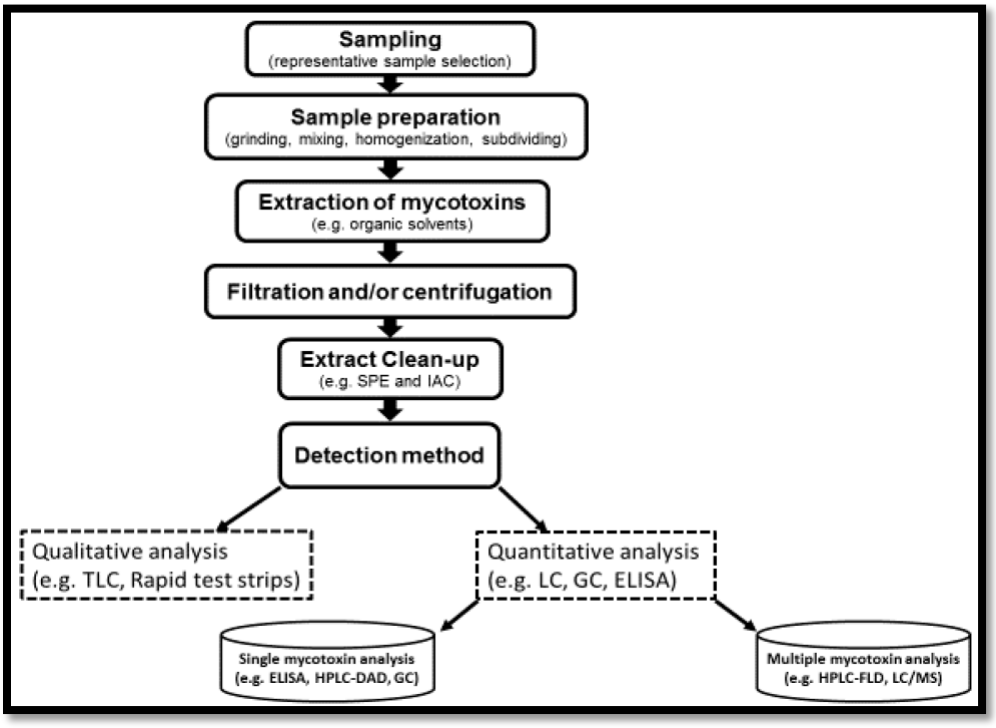

diagram of common steps involved in mycotoxins analysis in food commodities.

Transmission the Sample for Analysis :

1- Storage samples in a cool dark place.
2- Seal the whole pack in a plastic bag after Collecting, and put the sample code on the outside of the bag.
3- Send the total sample to the analytical ; the sampler is not required to split the sample.
4- Sending samples to the laboratory as soon as possible after collection, ensuring that they are in a good condition.

Testing for Sample mycotoxins consists of three steps:

1- Sampling: several small samples are taken at random from the lot and are composed into one larger " lot sample".
2- Sample preparation, which consists of:
   • Grinding: the entire lot sample is ground to a fine particle size
   • Subsampling: In analytical chemistry, sub-sampling is a procedure by which a small sample is taken from a larger sample. important when the large sample is not homogeneous.
   • Extraction: the analytical sample is extracted with using a solvent
3- Analysis: the analytical sample is analyzed and the amount of mycotoxins contained is determined.