AFLATOXINS : Occurrence and Health Risks

Aflatoxins are toxic metabolites produced by certain fungi in/on foods and feeds. They are probably the best known and most intensively researched mycotoxins in the world. Aflatoxins have been associated with various diseases, such as aflatoxicosis, in livestock, domestic animals and humans throughout the world. The occurence of aflatoxins is influenced by certain environmental factors; hence the extent of contamination will vary with geographic location, agricultural and agronomic practices, and the susceptibility of commodities to fungal invasion during preharvest, storage, and/or processing periods. Aflatoxins have received greater attention than any other mycotoxins because of their demonstrated potent carcinogenic effect in susceptible laboratory animals and their acute toxicological effects in humans. As it is realized that absolute safety is never achieved, many countries have attempted to limit exposure to aflatoxins by imposing regulatory limits on commodities intended for use as food and feed.

Aflatoxins often occur in crops in the field prior to harvest. Postharvest contamination can occur if crop drying is delayed and during storage of the crop if water is allowed to exceed critical values for the mold growth. Insect or rodent infestations facilitate mold invasion of some stored commodities.

Corn is probably the commodity of greatest worldwide concern, because it is grown in climates that are likely to have perennial contamination with aflatoxins and corn is the staple food of many countries. However, procedures used in the processing of corn help to reduce contamination of the resulting food product. This is because although aflatoxins are stable to moderately stable in most food processes, they are unstable in processes such as those used in making tortillas that employ alkaline conditions or oxidizing steps. Aflatoxin-contaminated corn and cottonseed meal in dairy rations have resulted in aflatoxin M1 contaminated milk and milk products, including non-fat dry milk, cheese, and yogurt.

Aflatoxin-producing members of *Aspergillus* are common and widespread in nature. They can colonize and contaminate grain before harvest or during storage. Host crops are particularly susceptible to infection by *Aspergillus* following prolonged exposure to a high humidity environment or damage from stressful conditions such as drought, a condition which lowers the barrier to entry.

The native habitat of *Aspergillus* is in soil, decaying vegetation, hay, and grains undergoing microbiological deterioration and it invades all types of organic substrates whenever conditions are favorable for its growth. Favorable conditions include high moisture content (at least 7%) and high temperature.

ALPHA BOOST: How Chlorophyll and plant nutrients remove toxins:

Nutrition must support the body's effort to purge itself from dangerous toxins consumed or absorbed in the daily diet. Plant based nutrients provide the building blocks for a strong immune and liver function. Chlorophyll has been studied and used traditionally to remove toxins that produce body odor, foul urine, putrid feces, and smelly infected wounds. More recently chlorophyll has been used to aid in the removal of various toxins via the liver and remains a key compound for improving the function of essential detoxification. Researchers in the early 1980s discovered that chlorophyll and related chemicals can inhibit the ability of certain DNA-damaging chemicals to cause mutations in bacteria. Chlorophyll is also effective in reducing toxins caused by pesticides and drug residue by purging them from the body. Chlorophyll forms complex compounds with the carcinogens while still in the digestive tract, thus limiting their bioavailability. Chlorophyll also removes carbon dioxide and carbon monoxide, the by-products of respiration and pollution.