

## DECONTAMINATION OF TOXINS

Various methods to decontaminate aflatoxin contaminated commodities

1. Physical methods (heating)
2. Chemical methods (Ammonia)
3. Biological methods (Eubacterium species).

Note: Since all mycotoxins are quite stable substances no physical or chemical treatment can be applied under practical field conditions, without altering the nutritive value of the grain or causing too high cost implications.

## DETECTION METHODS

### Birds

- ✓ Clinical & PM lesions
- ✓ Direct microscopic examination of suspected lesion
- ✓ Culture of suspected sample

### Feeds

Visual assessment of feed materials is not a reliable method of gauging the presence of mycotoxins. However, change in colour or texture can be suspected for contamination.

Three methods of analysis are routinely used to screen feedstuffs for toxin contamination.

- ↻ Thin layer chromatography (TLC)
- ↻ High pressure liquid chromatography (HPLC)
- ↻ Enzyme linked immunosorbent assay (ELISA)

Detection of low levels of toxins has been achieved by more novel methods, including antibodies, electrophoresis and immune-chemical methods, as well as via enzymes, bacteria, DNA and genomic techniques

## MANAGEMENT OF FEEDS

- \* Burning of wheat stubble, corn stalks and rice stubble which can be major sources of these moulds as temperatures increase in spring.
- \* Prevent excess damage to kernels during harvest which may predispose them to infection during storage.
- \* Reduce the moisture condition to 15% or below for storage (sun drying).
- \* Used of feed additives like Biomin,
- \* Used of adsorbents like minerals, clay.



### Compiled by:

K. Puro, Z.B. Dubal, R.K. Sanjukta  
& I. Shakuntala  
Division of Animal Health  
ICAR-RC for NEH Region  
Umiam, Meghalaya  
Pin – 793103

For further details or information, contact to,  
**DIVISION OF ANIMAL HEALTH**  
ICAR RC for NEH Region,  
Umiam, Meghalaya  
Ph- 0364-2570071/2570257

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## MYCOTOXICOSIS IN POULTRY



**DIVISION OF ANIMAL HEALTH**  
ICAR-RC for NEH Region  
Umiam, Meghalaya  
Pin – 793103



Mycotoxins are diverse group of toxic secondary metabolites produced by certain fungi/molds that include members of the genera *Aspergillus*, *Penicillium*, *Fusarium*, *Alternaria*, *Cladosporium* etc. which could contaminate many agricultural commodities used in the formulation of poultry finished feed samples like corn, wheat, soybean, barley and others.



Fungal contamination may occur at any level of feed production ranging from infection of standing crops, poor harvest conditions, spoilage during storage, and contamination from spores in feed processing machinery and in the finished feed.

### PREDISPOSING FACTORS

Unpredictable or severe weather (drought or heavy rain) can affect the production of mycotoxins.

- ✿ Drought exacerbates toxin secretion
- ✿ Grain harvested in wet condition develop fungal growth leading to subsequent toxin production
- ✿ High humidity, temperature and heavy rainfall

### AFFECTED FLOCKS SHOWED ONE OR MORE OF THE FOLLOWING SYMPTOMS

1. Decreased weight gain
2. Decreased feed intake
3. Decreased egg production
4. Poor egg shell quality
5. Increased egg blood spots
6. Spiking mortalities
7. Immunosuppression
8. Failure of vaccination
9. Increased susceptibility to *E. coli* infection
10. Reduced fertility and hatchability
11. Leg deformities
12. Paralysis
13. Increased incidence to disease like Newcastle disease, infectious bursal disease and inclusion body hepatitis.

### POST MORTEM LESION

- ✿ Oral lesions
- ✿ Visceral hemorrhages
- ✿ Gizzard erosions
- ✿ Increased bruising
- ✿ Pale bird syndrome
- ✿ Enlarged kidneys & liver
- ✿ Urate deposition in the body cavities



### PREVENTION OF MYCOTOXINS

Management practices to maximize plant performance and decrease plant stress can decrease mycotoxin contamination substantially.



But even the best management strategies cannot completely eliminate mycotoxin contamination in feeds. Some fungi are widespread colonizers of crop residues, where the pathogen survives during winter.



### WAYS TO AVOID MYCOTOXICOSIS

- \* Store the feeds in dry clean place
- \* Avoid feeds that change its normal colour
- \* Avoid feeds that are moist and cakey
- \* Time to time turning of stored feeds
- \* Drying in the sun at regular intervals