A practical guide to differential diagnosis

1 – Oral lesions

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Oral lesions are particularly prevalent in laying hens or breeders and may arise from different etiological agents. Alkaline acting mycotoxins, such as type-A trichothecenes may cause lesions to the epithelium and increase the speed of epithelial cell renovation (see table right). Also related to feed factors is feed granulometry in which small particles of feed may obstruct saliva ducts thus causing oral lesions. Other frequently ignored factors are, for example, an excess of organic acids or copper sulphate and/or a mismanagement of injectors which may produce points of high concentration of methionine and other components in the feed, ultimately leading to similar lesions.

Although difficult to diagnose, the onset of mycotoxicosis on a farm is often related to a new batch of feed. Mycotoxin analysis of the feed by high performance liquid chromatography (HPLC) or to commodities (by ELISA or HPLC) must be performed if the presence of mycotoxins is suspected. This will provide valuable information which can be gathered in addition to observing clinical signs and necropsy examinations.

If other diseases are to be ruled out, then histo-pathology, bacterial and viral cultures and serology should be performed. Quite frequently the effects of mycotoxins in animals are subclinical and are therefore overlooked by farm technicians. If there are already financial losses in the case of subclinical mycotoxicosis, these losses escalate when symptoms are observed.

These include not only the loss of genetic potential but the investment required to treat symptoms or underlying illnesses.

Prevention can be undertaken through the use of a proper mycotoxin risk management tool which adsorbs and/or biotransforms mycotoxins, thus eliminating their toxic effects for the animals, while guaranteeing liver and immune protection.

Biomin's Mycofix product line combines the three strategies – adsorption, biotransformation and bioprotection – which work together to prevent the hazardous effects of mycotoxins in poultry flocks. ■

Check list	Corrective action
Potential cause: MYCOTOXINS: T-2 toxin (T-2) or Diacetoxyscirpenol (DAS)	
• Positive for T-2 and/or DAS in raw materials (ELISA) or feed (HPLC). • Origin of raw materials from supplier/region with history of T-2/DAS contamination. • Histopathology: Proliferating epithelial cells. Hepatic vacuolization. • Decline in the overall performance of the flock.	• Check average contamination levels. • Use Mycofix at a correct dosage level. • Avoid contamination of feed bins or feed/water lines by stale, wet or mouldy feed.
Potential cause: NUTRITION: Feed granulometry	
• Pelletised feed: fine particles >20%. • Mashed feed: Check geometric mean particle diameter. • Histopathology: Presence of inflammatory cells and bacteria. • No decline in overall flock performance.	• Adjust the pelleting process. • Increase in sieve diameter. • Use of pellet binders to improve pellet quality.
Potential cause: MANAGEMENT: Liquid methionine	
• Methionine injector dripping inside masher. • Histopathology: Infiltration of inflammatory cells. Necrotic lesions. • No decline in overall flock performance.	• Clean/replace methionine injectors.
Potential cause: MANAGEMENT: Organic acids	
• Acids injector dripping inside masher. • Histopathology: Infiltration of inflammatory cells. Necrotic lesions. • No decline in overall flock performance.	• Clean/replace acid injectors. • Adjust dosage of organic acids.
Potential cause: MANAGEMENT: High temperatures	
• Histopathology: Infiltration of inflammatory cells. Necrotic lesions. • Possible decline in overall flock performance. • Increased mortality.	• Apply vitamins in water. • Apply organic acids in water. • Increase chlorine level in water.
Potential cause: MANAGEMENT: Copper sulphate	
• Check concentration of $CuSO_4$ in premix. • Check concentration of $CuSO_4$ in water. • Check if water dosing system is working correctly (if applicable).	• Apply group B vitamins and K3 vitamin in water. • Correct set up of the water dosing system

Note: Pathogens were excluded from the table due to space constraints but may be important to consider.