Issue 11 • Poultry
A magazine of Biomin®

Science & SolutiOns

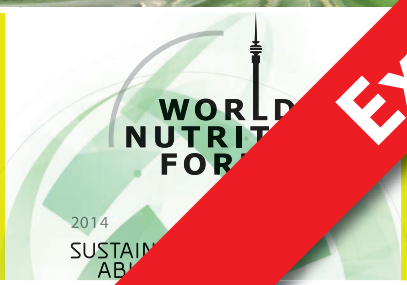
Gizzard lesions

What´s wrong with my birds

Photo: Ugurhan Betin

Mycotoxin-induced lesions

Understanding mycotoxicosis is a key step towards proper diagnosis



ntry in focus

utrition, gut health and sustainable broiler production at the World Nutrition Forum

Excerpt

What's wrong with my birds?

Part 2: Gizzard lesions

Cut & Keep Checklist

Science & Solutions presents a handy checklist for diagnosing poultry mycotoxicosis. Cut this out and take it along with you to the farm!

Diagnosing common poultry ailments correctly and precisely can be a challenge even for experienced vets, nutritionists or farm managers. In the case of mycotoxin-related problems, differential diagnosis can be especially difficult as symptoms vary greatly. The following table provides an overview of the potential causes and a checklist of corrective actions; however, please exercise due caution and discretion in use.

	Potential cause	Description of problem	Check list	Corrective actions
MYCOTOXINS	Cyclopiazonic acid (CPA) Deoxynivalenol (DON) and/or T-2 toxin (T-2)	Lesions develop in the proventriculus, gizzard, liver and spleen. The proventriculus is dilated and the mucosa is thickened and sometimes ulcerated.	☐ Positive for CPA, DON and/or T2 in raw materials (ELISA) or feed (HPLC) ☐ Raw materials originating from supplier/ region with history of CPA contamination ☐ Histopathology: Proventriculus hyperplasia of mucosa with heavy infiltration of lymphocytes ☐ Overall decline in flock performance	☐ Check average contamination levels ☐ Use Mycofix® at a correct dosage level ☐ Avoid feed bins or feed/ water lines that have become contaminated by stale, wet or moldy feed
MANAGEMENT	Copper sulphate	$CuSO_4$ can promote gastric lesions especially at the gizzard level.	☐ Concentration of $CuSO_4$ in premix ☐ Concentration of $CuSO_4$ in water ☐ Water dosing system is working properly (if applicable)	☐ Apply group B vitamins and K_3 vitamin to the water ☐ Correctly set-up the water dosing system
	Acetylsalicylic acid and sodium salicylate	Use of salicylates may induce proventriculus and gizzard ulceration.	☐ Dosage of salicylates used (check overestimation of feed intake in feed restricted animals) ☐ Mixability of commercial product in water	☐ Avoid low quality products (low mixability, low homogeneity in water) ☐ Adjust the feed intake of feed-restricted animals
NUTRITION	Biogenic amines (Gizzerosine)	Low quality/ over-processed fishmeal can result in high levels of gizzerosine. Hyper-production of HCl in the proventriculus causes erosions in the gizzard.	☐ Level of gizzerosine in raw materials (especially fishmeal)	☐ Lower the level of fishmeal in diets ☐ Avoid using low quality fishmeal ☐ Replace standard fishmeal with low temperature (LT) fishmeal
	Rancid fats	Low quality fats (long storage, overheating) can contain high levels of superoxide radicals and hydroxyl radicals.	☐ Quality of fats in term of peroxide value, rancidity and free fatty acids	☐ Avoid low quality fats ☐ Use low quality fats in the grower/ finisher phases ☐ Replace animal fats with vegetable fats
	Tannins	Toxic levels of tannins in the feed cause oesophageal and gastric edema, hemorrhagic ulceration, necrosis and sloughing of the mucosal lining.	☐ Level of tannins in some raw materials (sorghum) and in tannin-based products	☐ Use high quality tannin-based product (chestnut is preferred to quebracho) ☐ Reduce % of sorghum in high-tannin diets
PATHOGENS	Adenovirus serotype 1	Vertically transmitted, usually sub-clinical but provides more exposure to secondary bacterial infection. • Group I is exhibited through inclusion body hepatitis (sudden onset of mortality, typically 10% and rarely up to 30%) or hydro pericardium (same symptoms as IBH, but severe mortality at 20-80%). • Group II is exhibited through hemorrhagic enteritis and marble spleen disease in turkeys, and avian adenovirus group II splenomegaly in chickens. • Group III affects most poultry due to the egg drop syndrome.	☐ Isolation of serotype I, II or III from the lesions by serological assays	☐ Use inactivated vaccines (only available for group 1) ☐ Check the breeding stock and eliminate affected birds
	Infectious bursal disease (IBDV/ Gumboro)	IBDV is very immunosuppressive and causes lesions at the junction of the proventriculus-gizzard.	☐ Maternal antibody titers are very low in day-old chicks	☐ Implement/ correct vaccination program in breeders ☐ Change from mild- to strong-reaction vaccine ☐ Correct vaccination age (Deventer formula) ☐ Increase biosecurity level

For more information, visit **www.mycotoxins.info**