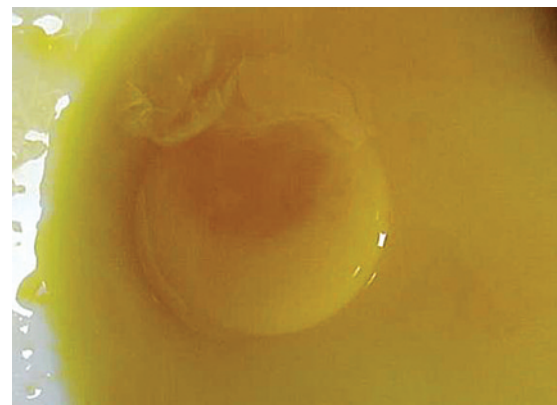


A practical guide to differential diagnosis



5 – Egg production/quality problems

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Good and stable egg production and good egg quality are of utmost importance to farmers depending on their layer's output for a living. Bad management practices, feed and environment-related issues and diseases are some of the factors which may cause a negative impact in egg production and egg quality. Besides these, animal-related factors, such as age and strain of layer birds must not be disregarded. Older birds and birds after moulting are known to produce bigger eggs with thinner shells and indigenous strains cannot quite compete with commercial layers in terms of number of eggs produced.

Several management issues (see table) may lead to nervous birds and/or traumatic lesions in the ovary which cause poor egg quality (fragile shell/bloodspots/meat spots). Nutrition wise, improper balance of calcium, phosphorus and vitamin D may lead to thin egg shells. Also, large amounts of lucerne/alfalfa meal in the diet can lead to blood spots caused by vitamin K antagonists in this feed ingredient. Interestingly, the use of the drug sulphaquinoxaline may have the same effect as mineral imbalance. In terms of pathogens, infectious bronchitis (IB) causes respiratory disease and kidney damage in growers and oviduct infection in adult hens, which can cause wrinkled egg shells as well as a reduction in eggs laid.

Due to the liver and kidney toxicity mycotoxins may negatively impact egg and shell formation, leading to poor egg and shell quality (pale eggs/small, fragile shell/bloodspots/meat spots). For mycotoxin-related problems, 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. The Mycofix product line from Biomin combines the three strategies – adsorption, bio-transformation and bioprotection – which work together to prevent the hazardous effects of mycotoxins in poultry flocks. ■

Check list	Corrective action
Potential cause: MANAGEMENT: Nervous birds/traumatic lesions in the ovary	
<ul style="list-style-type: none"> • Lighting program • Temperature of the barn • Presence of frights and disturbances in the barn that may get birds nervous 	<ul style="list-style-type: none"> • Correct lighting program • Correct temperature of the barn • Improve management of laying birds
Potential cause: MYCOTOXINS: Aflatoxins (Afla), Cyclopiazonic acid (CPA), T-2 toxin (T-2), Ochratoxin A (OTA)	
<ul style="list-style-type: none"> • Positive for Afla, CPA, T-2 and/or OTA in raw materials (ELISA) or feed (HPLC) • Raw materials originating from supplier/region with history of mycotoxin contamination • Histopathology: Check other target organs of these mycotoxins (for example kidneys, liver) • Decline in overall flock performance 	<ul style="list-style-type: none"> • Check average contamination levels • Use Mycofix at the correct dosage level • Avoid feed bins or feed/water lines becoming contaminated by stale, wet or mouldy feed
Potential cause: NUTRITION: Mineral/vitamin imbalance	
<ul style="list-style-type: none"> • Calcium/phosphorus balance in diets • Calcium carbonate particle size 	<ul style="list-style-type: none"> • Correct mineral and vitamin balance • Correct calcium carbonate particle size
Potential cause: NUTRITION: Vitamin K antagonists	
<ul style="list-style-type: none"> • Content of lucerne/alfalfa meal in diets • Presence of sulphaquinoxaline in diets 	<ul style="list-style-type: none"> • Correct amount of lucerne/alfalfa meal in diets • Correct medication program
Potential cause: PATHOGENS: Infectious bronchitis (IB)	
<ul style="list-style-type: none"> • Laboratory tests to confirm the presence of the coronavirus in a swab or tissue sample 	<ul style="list-style-type: none"> • Vaccination program must be adapted to the demands of the field situation in each particular area/epidemiology
Potential cause: GENETICS: Bird strain	
<ul style="list-style-type: none"> • Check with genetic supplies (some strains more susceptible to blood spots) 	<ul style="list-style-type: none"> • Replace genetics if necessary

References are available from the authors on request