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POULTRY NUTRITION NEWSLETTER



Department of Poultry Science
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UNIVERSITY OF GEORGIA

NUTRIBINS

LATEST NUTRITION RESEARCH AT A GLANCE

POULTRY

Comparing different duck breeds/strains, **amino acid content** was higher in breast muscle of hybrid strain BH2 and Jianchang duck compared to BHI, MC, and Cherry Valley, which might be associated with the higher expression levels of mTOR, 4E-BP1 and PAT1 in breast muscle of BH2 and SLC38A2 in breast muscle of Jianchang duck; this may provide an an important basis for improving the nutritional value of duck meat in the breeding process.

Sichuan Agricultural University | [Link](#)

In Pekin ducks, **riboflavin deficiency** induced growth depression and intestinal hypofunction, which may be associated with impaired intestinal absorption and energy generation processes in intestinal mucosa, as well as gut microbiota dysbiosis.

Chinese Academy of Agricultural Sciences | [Link](#)

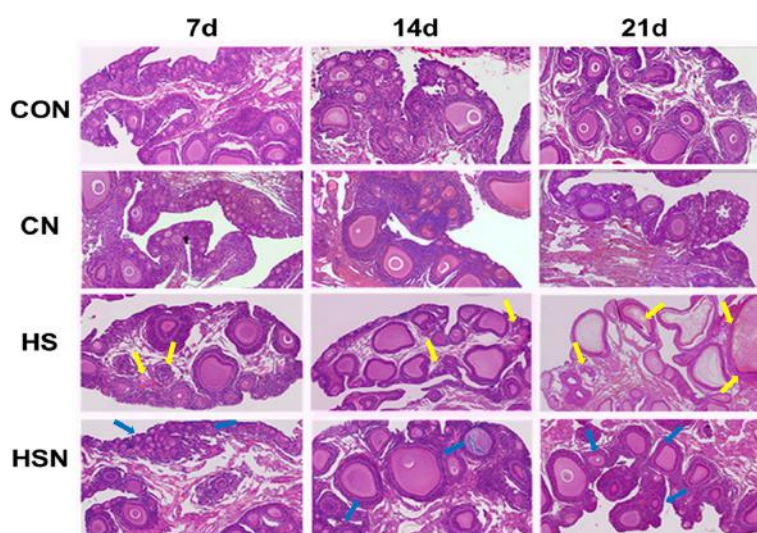


Fig. Results of H&E staining in ovarian tissues (40 ×).

In Hy-Line Brown pullets, supplementing 1 g/kg **N-acetyl-L-cysteine** was found to ameliorate ovary damage due to chronic heat stress via increased antioxidant enzyme activities.

Jiangxi Agricultural University | [Link](#)

In laying hens, **Sodium butyrate reduces ammonia production** in the cecum of laying hens by regulating ammonia-producing bacteria.

South China Agricultural University | [Link](#)

In laying hens between 19 and 34 weeks of age, dietary **free fatty acids** at 10 to 45%, did not affect egg quality and yolk composition as much as the dietary fat source did (soybean oil vs. palm oil), supporting the use of acid oils and fatty acid distillates as fat ingredients for feed.

Universidad CEU Cardenal Herrera | [Link](#)

In laying hens, supplementing **fermentable fiber, xylanase, and XOS** increased utilization of dietary xylan, improved nutrient utilization, performance, and gastrointestinal health.

University of New England | [Link](#)

In 67-week-old laying hens, supplementing **golden needle mushroom** (*Flammulina velutipes*) at 2-6% maintained the productive performance of aging laying hens likely by alleviating the degree of oxidative stress and regulating the transport of functional substances along the liver-blood-ovary axis, thereby improving the synthesis of yolk precursors.

Jilin Agricultural University | [Link](#)

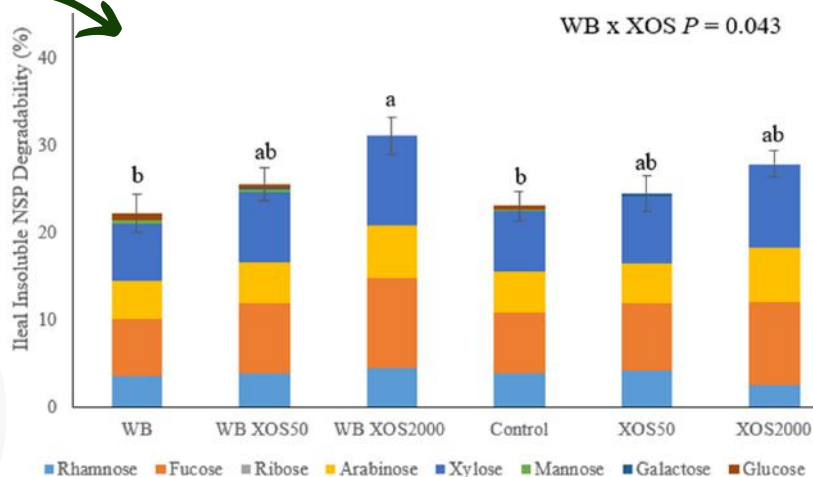


Fig. Effect of wheat bran (WB), xylanase (XYL) and xylo-oligosaccharides (XOS) on ileal insoluble nonstarch polysaccharide (NSP) degradability (%)

In a classical protein efficiency ratio (PER) chick growth assay model, the protein quality of black soldier fly larvae meal, SBM, and fish meal were compared, results showed that **protein quality of BSFLM** without or with additional EAA was comparable with FM and SBM; and birds fed BSFLM+ had greater BWG ($P < 0.01$) than birds fed other diets.

University of Guelph/Link

In broilers, **intermittent feeding** (4 times feeding/d, each time 1 or 1.5h) or **fasting** (1d acute fasting, 6 d free access to feed) promoted muscular angiogenesis and prevented muscle degeneration, and thus prevented the development of white striping without impairing growth performance.

China Agricultural University/Link

In broilers, **modified dietary fiber from cassava pulp** can be used as a dietary fiber source in broiler diets, with a recommended level of approximately 1.0%.

Suranaree University of Technology/Link

In broilers fed corn- or wheat- based diets, supplementing 0.175% **algae** only improved 42d FCR in corn-based diets.

Iowa State University/Link

In broilers, supplementing 1000 mg/kg **chemically-protected sodium butyrate** significantly impacted gut microbiota compared to those fed antibiotics.

Chinese Academy of Agricultural Sciences/Link

Review # 1

Research progress on bird eggshell quality defects

In this review, the molecular mechanisms of the main **eggshell quality defects** (speckled, translucent, pimpled, broken, and soft-shell eggs) and the relevant improvement methods are detailed.

China Agricultural University/Link

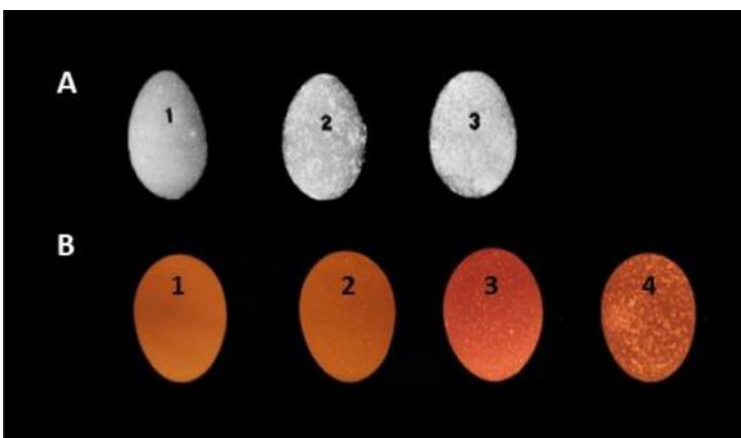


Fig. Measurement methods of translucent eggs.

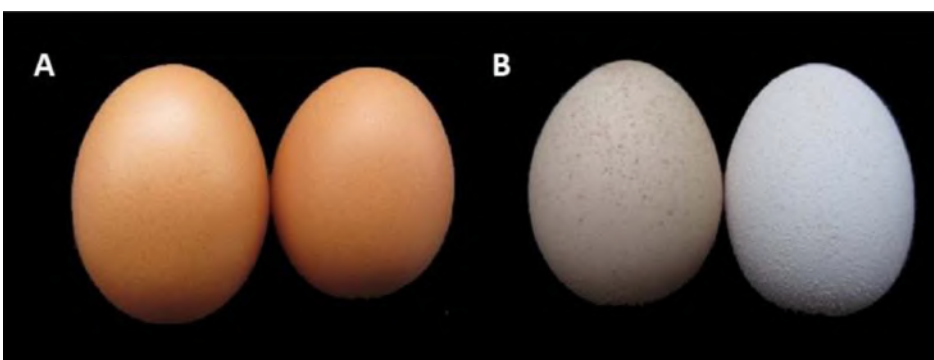


Fig. Pimpled and normal eggs. (A) Normal eggs. (B) Pimpled eggs

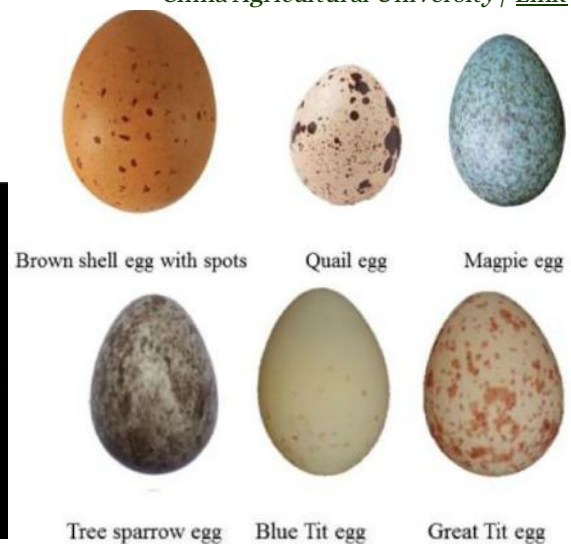


Fig. Speckled eggs in different birds.

Review # 2

Absorption of methionine sources in animals

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This literature review evaluates the absorption of **methionine (Met) sources** such as 2-hydroxy-4-methylthiobutyric acid (HMTBa), its calcium salts (HMTBa-Ca), and DL-methionine (DL-Met) by focusing on the state of knowledge regarding the absorption mechanism, experimental methodology, and factors affecting their absorption. ...This review addresses diffusion- and transport-mediated absorption systems for amino acids and carboxylic compounds, best elucidated by in vitro, ex vivo, and in vivo experimental models.”

IMAA, Novus, and Adisseo | [Link](#)

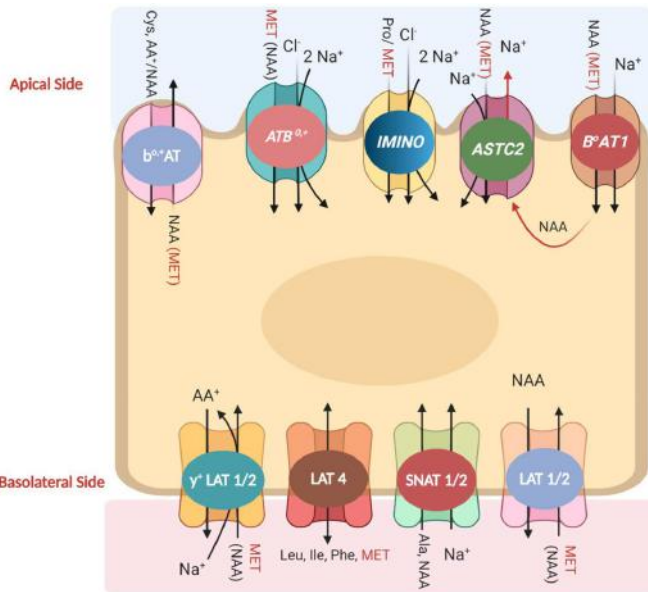


Fig. Representation of different influx and efflux transporters involved in the transport of Met at an enterocyte.

Review # 3

Practices and issues of moulting programs for laying hens

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This review mainly focus on **moulting practices** associated with commercial layer birds --- Commercial farms commonly analyse the cost-benefit ratio to decide the time and method to adopt for moulting. Commercial layer farms adopt different practices to force birds out of moult and restart the production cycle. Many studies have been conducted using complete or partial feed withdrawal and non-feed withdrawal programs to measure their effectiveness in maintaining animal welfare, economy, and post-moult performance in mind. Animal welfare should not be compromised during moulting.

University of Hawaii | [Link](#)

Review # 4

infrared spectroscopic methods for the rapid screening and routine analysis of mycotoxins in food crops

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The purpose of this review is to discuss the current state-of-the-art and the potential of **IR spectroscopic methods** for the rapid determination of mycotoxins in food crops. The study critically reflects on the applicability and limitations of IR spectroscopy in routine analysis and provides guidance to non-spectroscopists from the food and feed sector considering implementation of IR spectroscopy for rapid mycotoxin screening. Finally, an outlook on trends, possible fields of applications, and different ways of implementation in the food and feed safety area are discussed.

University of Natural Resources and Life Sciences & Queens University Belfast | [Link](#)

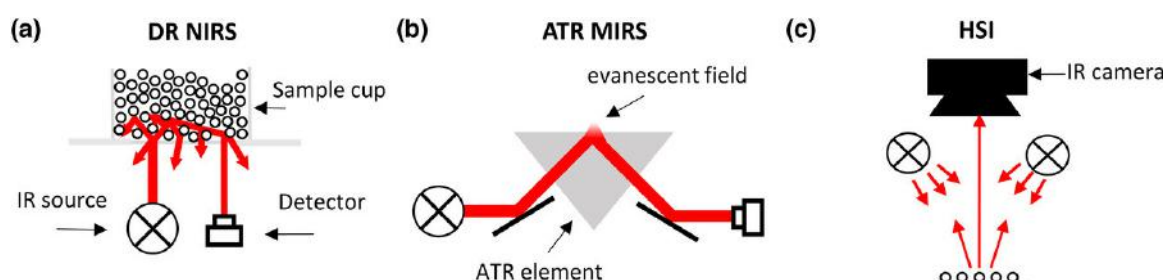


Fig. Typical settings for mycotoxin screening in NIRS, MIRS, and HSI.