



Department of Poultry Science

College of Agricultural & Environmental Sciences

UNIVERSITY OF GEORGIA



UGA Poultry Nutrition Newsletter

April, 2024

Poultry News

[March 2024 Business Update: What's new in the world of poultry? \(Poultry World\)](#)

- The summary of the latest business updates from the global poultry industry

[2024 US per capita broiler consumption to top 100 pounds \(WATT Poultry\)](#)

- Per capita meat consumption from broilers in the U.S. continues to increase, but turkey consumption remains down from its peak decades ago.

[Possible spread of H5N1 to beef cattle a big concern \(WATT poultry\)](#)

- To date, 20 dairy herds in the United States have been affected by H5N1. Texas has had the most confirmed cases, with nine herds affected, followed by New Mexico with four, Kansas with three, and Michigan with two. Ohio and Idaho have each had one herd affected.

[Alltech: Global feed production down slightly in 2023 \(Feed Strategy\)](#)

- Global animal feed production remained steady in 2023 at 1.29 billion metric tons (BMT), but was down slightly, 2.6 million metric tons (MMT) — or 0.2% — from 2022's estimates. Poultry experienced an increase in broiler feed production (385.04 MMT, +13.10 MMT, +3.5%) and remained steady with a slight increase for layers (170.88 MMT, +0.01 MMT, 0%).

UGA Poultry Researcher Highlight

Dr. Drew Benson's laboratory focuses on improving reproductive fitness and elucidating the mechanisms involved in avian fertilization. Currently, the lab is investigating Zona Pellucida (ZP) proteins, discovering the links between certain ZP genes and fertility outcomes in poultry. Key findings include ZPB2's significant presence at sperm-binding sites, which suggests ZPB2's potential role in initiating fertilization in poultry. The lab is continuously working on correlating ZP protein levels with fertility indicators and exploring new fertility markers in individual hens, aiming to improve reproductive fitness and production of commercial hens. These projects are collaborative efforts with undergraduates, offering them valuable experience, and emphasizing fundamental research's impact on poultry production efficiency. Meanwhile, the lab plans to expand its practical research on broiler breeder management to enhance welfare and reproduction.



[Contact Benson's Lab](#)

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Eggsplore Poultry Events

March

Annual Meat Conference | Nashville TN | **18-20**
Alumni & Friends Reception | Tifton GA | **26** 
Deep South Poultry Conference | Tifton GA | **27** 

April

UGA Hatchery Workshop | Athens GA | **2-4** 
UGA Hot Weather Workshop | Athens GA | **9-11** 
West Poultry Disease Conference | Salt Lake City UT | **15-17**
North Central Avian Disease Conferences | South Minneapolis MN | **16-17**
Workforce Success and Engagement Conference | Destin FL | **17-19**
PEAK | Minneapolis MN | **17-19**
8th International Conference on Poultry Intestinal Health | Metro Manila Philippines | **17-19**
AFGA Nutrition Seminar | Huntsville AL | **24-25**

May

Precision Poultry Seminar | Virtual | **1** 
Stakeholders Summit | Kansas City MO | **8-9**
International Poultry Congress | Bursa Turkey | **8-11**
International Avian Respiratory Disease Conference | Athens GA | **13-17** 
Poultry Health Management School | West Lafayette IN | **14-17**
Poultry Processor Workshop | Nashville TN | **15-16**

June

FSMA PCQI Training | Nashville TN | **4-6**
Feed Industry Institute | Minneapolis MN | **17-20**
Avian Academy Teacher Education Program | Athens GA | **17-20** 
Southeast Egg Industry Regional Conference | Asheville NC | **18-20**
European Poultry Conference | Valencia Spain | **24-28**
Financial Management Seminar | Marco Island FL | **26-28**

July

Hatchery Breeder Clinic | Nashville TN | **9-10**
AAAP Annual Meeting | St Louis MO | **9-11**
SC Poultry Federation Annual Conference | Isle of Palms SC | **11-14**
14th International Symposium on Mavrik's Disease and Avian Herpesviruses | St Louis MO | **12-14**
Poultry Science Association Annual Meeting | Louisville KY | **15-18**
Texas Poultry Federation Annual Convention | San Antonio TX | **18-20**
Chicken Marketing Summit | Birmingham AL | **29-31**


August

National Safety Conference for the Poultry Industry | Destin FL | **19-21**
Women's Leadership Conference | Destin FL | **22-23**
Arkansas Nutrition Conference | Rogers AR | **27-29**

September

Liquid Feed Symposium | Salt Lake City UT | **10-12**
Shell Egg Academy | West Lafayette IN | **10-12**
California Poultry Federation Annual Conference | Monterey CA | **12-13**
NTF Leadership Conference | Washington DC | **16-18**

Environmental Management Seminar | Destin FL | **19-20**

UGA Layers Conference | Athens GA | **23** 

UGA Broiler Conference | Athens GA | **25** 

59th National Meeting on Poultry Health, Processing, and Live Production | Ocean City MD | **30-2**

October

Georgia National Fair | Perry GA | **3-13**
Poultry Symposium for Production & Processing | Rogers AR | **7-10**
Poultry Protein & Fat Seminar | Nashville TN | **16-17**
International Conference on Poultry Science | Lisbon Portugal | **28-29**


November

Cold Weather workshop | Athens GA | **18-20** 

TBD

Symposium on Gut Health in Production of Food Animals | St Louis MO | **Oct - Nov**
Poultry Tech Summit | Atlanta GA | **Nov**
NPFDA 2024 Fall Meeting | Orlando FL | **TBD**
Food Animal Innovation Summit | Raleigh NC | **TBD**
Processing Expo | **TBD** | **TBD**
US Poultry and Egg Education Program | **TBD** | **TBD**
Live Production, Welfare & Biosecurity Seminar | **TBD** | **TBD**
Air Cargo Seminars | **TBD** | **TBD**
European Symposium on Poultry Nutrition | **TBD** | **TBD (2025)**

2025 - January

International Production and Processing Expo | Atlanta GA | **28-30**
International Poultry Short Course | Athens GA | **TBD** 
AFIA Feed Education Program | Atlanta GA | **TBD**
Feed Your ESG: How Will Help Hit Sustainability Targets | Atlanta GA | **TBD**
NPFDA Annual Convention and Showcase | Atlanta GA | **TBD**

February

NTF Annual Convection | Scottsdale AR | **19-22**



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 **CHEN Lab**

Edited by Nicolás Mejia-Abaunza, DVM. Master's Student
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Updated on Mar 2024

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2024 APRIL

**In this issue, you will read research summaries from
8 Broilers studies
3 Layer study
3 Literature review
from 14 research institutes in 9 countries**



POULTRY NUTRITION RESEARCH SUMMARY

**Chongxiao (Sean) Chen*, Xixi Chen #, Catherine Fudge*, Muhammad Ali*, Nicolás Mejía-
Abaunza*, and Lily Xu #**

*** Department of Poultry Science, University of Georgia**

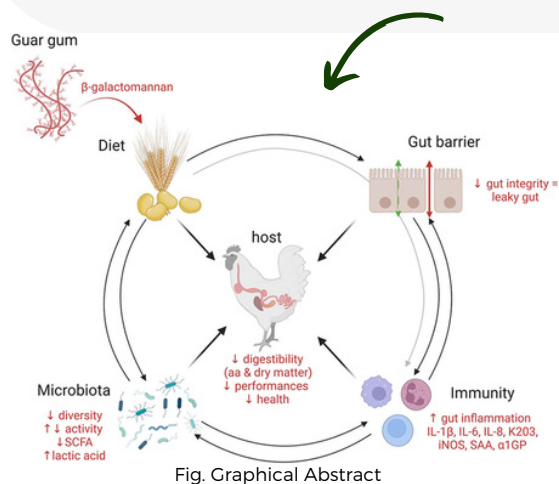
Nutribins LLC

LATEST NUTRITION RESEARCH AT A GLANCE

POULTRY

In broilers, trials were performed to explore the **guar gum** (GG) induced leaky gut model. Dietary GG at 2, 4, and 6% linearly reduced growth performance and energy utilization in a semi-purified diet. Meanwhile, 2% GG in a regular diet decreased amino acids digestibility, increased gut permeability, alerted cecal microbial activity, and induced gut inflammatory responses.

Adisseo ELISE / [Link](#)



In broilers, fermentation processes increased the nutritional value of feather meal. The diet containing **4% feather meal fermented by *B. licheniformis* + *B. subtilis* + *A.niger*** showed improved production parameters, gut morphology, blood biochemical indices (total protein, albumin, globulin), small intestine protease activity while reducing the blood cholesterol, uric acid, triglycerides, and hepatic enzyme activity at d 42.

Guilan University / [Link](#)

In broilers, **postbiotic** (*Saccharomyces cerevisiae* fermentation product @ 1.25 kg/MT feed) improved IBDV and NDV antibody titer at d 28, reduced blood cholesterol and corticosterone concentration at d 35, improved gut morphology, *E. Coli* and *Salmonella* count at d 42, and overall feed efficiency.

West Bengal University / [Link](#)

In broilers, **concentrated *Saccharomyces cerevisiae* fermentation product** (0.625 kg/MT) improved feed efficiency, reduced corticosterone levels, and heterophil/lymphocyte ratios post-heat stress and feed withdrawal.

Texas A&M University / [Link](#)

In Clostridium perfringens-challenged broilers, supplying **yeast cell wall** (*Saccharomyces cerevisiae*) at 0.25 or 0.5 g/kg improved growth performance, carcass yield, blood biomarkers (total protein, globulin, glucose), liver function, small intestine histology, intestine lesion score, and bacterial load.

Alcorn State University / [Link](#)

In broilers, **supplementation with *Lactiplantibacillus plantarum* HJLP-1** at 5.03x10⁸ CFU/kg enhanced performance, antioxidant response, anti-inflammatory capacity, and reduced serum ammonia levels. It also modulated the gut microbiota and increased butyric acid and acetic acid in ceca.

Zhejiang Agriculture and Forestry University / [Link](#)

In broilers, supplementing **sfericase protease** (30,000 NFP/kg) can make up 6% reduction in digestible amino acids. Adding 30,000 or 60,000 NFP/kg of sfericase protease in a balanced diet improved starter BWG and reduced overall FCR during the 1-35-day period.

Federal University of Santa Maria / [Link](#)

POULTRY

LATEST NUTRITION RESEARCH AT A GLANCE

In broilers, **deoxynivalenol and fumonisin** increased lameness in broilers regardless on **wire cages and litter floors**, because these mycotoxins increased intestinal permeability.

University of Arkansas / [Link](#)

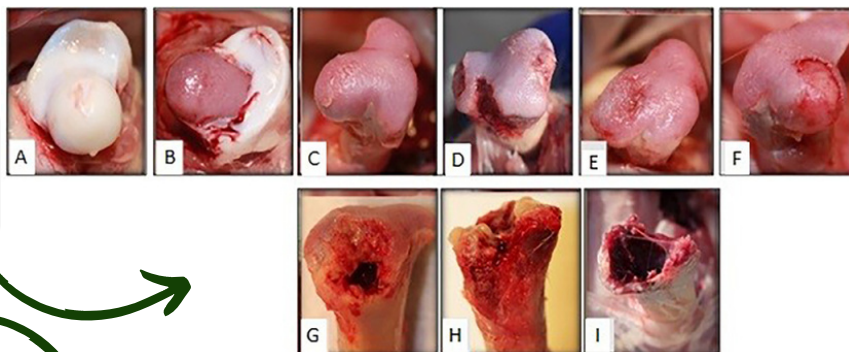


Fig. Femoral lesions for BCO lameness progression categorizations

In layers, **amino acid complexed** minerals (AAC, 20 ppm Cu, 40 ppm Mn, 60 ppm Zn) did not affect egg production and quality from 60 to 75 weeks of age compared to sulfated minerals. However, AAC minerals enhanced the retention of zinc, calcium, and manganese but increased Cu excretion.

Texas A&M University / [Link](#)

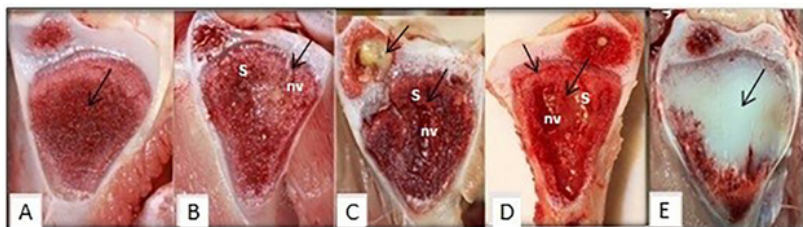


Fig. Tibial lesions for BCO lameness progression categorizations

In layers, **micelle silymarin supplementation** from 0.02% to 0.06% linearly improved laying performance and eggshell quality while reducing blood cholesterol at ages 28 to 42 weeks.

Dankook University / [Link](#)

In laying hen chicks, aflatoxin b1 was mitigated by **Lactobacillus reuteri peptidoglycans** (100, 200, 300 mg/kg), with increased growth performance. 300 mg/kg peptidoglycans also improved antioxidant activity and immune indices, including IgA, IgG, and IL-2. The optimal supplemental dose was 200 mg/kg in feed.

Qingdao Agricultural University / [Link](#)

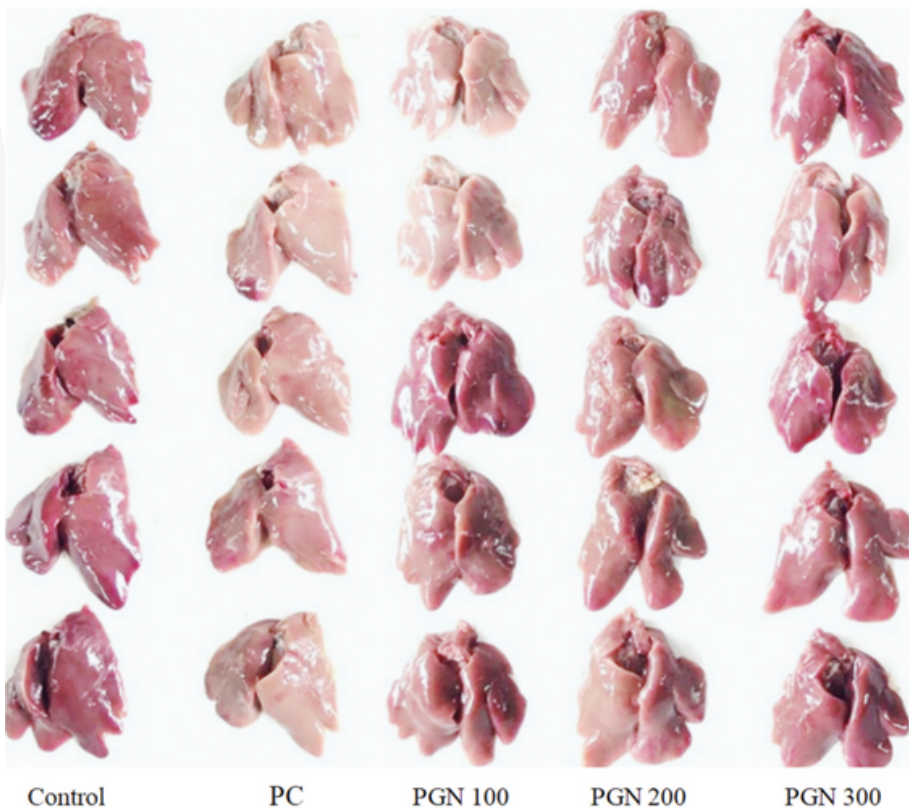


Fig. Effects of *L. reuteri* peptidoglycan on liver colour changes of chicks fed AFB1-contaminated diets.



LATEST NUTRITION RESEARCH AT A GLANCE

POULTRY

Review#1

Microbiome-related nutritional interventions interfering with the colonization of foodborne pathogens in broiler gut to prevent contamination of poultry meat

Demand for poultry meat is increasing globally, but one of the challenges in the poultry food system is foodborne pathogens that are an issue to public health and the economy. **Microbiome-related nutritional interventions** are one of the solutions to tackle this issue. This review summarizes the different nutritional interventions including prebiotics, probiotics, phytobiotics, synbiotics, enzymes, organic acids, and essential oil and their modulating effect on E.coli, Lactobacillus spp, Campylobacter spp, Lactic acid bacteria, and Salmonella.

University of Bologna | [Link](#)

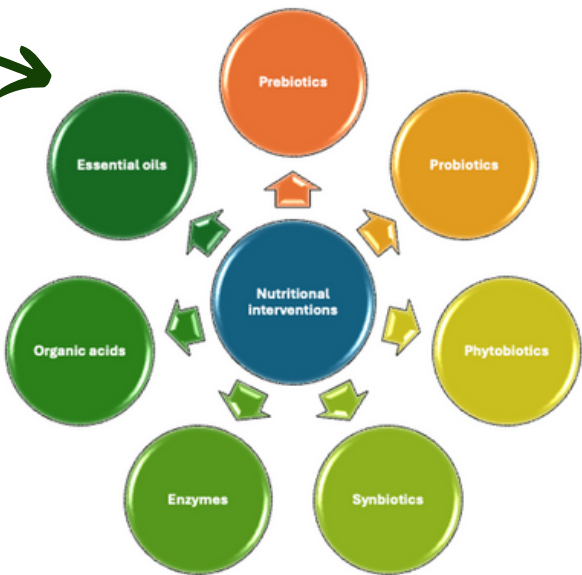


Fig. Microbiome-related nutritional interventions by Muhammad Ali from UGA

Review#2

Recent advances and future technologies in poultry feed manufacturing

Feed manufacturing has changed drastically in the 20th and 21st centuries. With the advancements made in technology, engineering, and feed formulation. Some of the advancements that have made the most significant impact include least-cost feed formulation, computerized modeling, and automation. Technology is rapidly evolving, and the future of feed milling may contain machine learning, inline near-infrared spectroscopy, precision nutrition, lights-out formulation (total automation), and more.

University of Guelph | [Link](#)

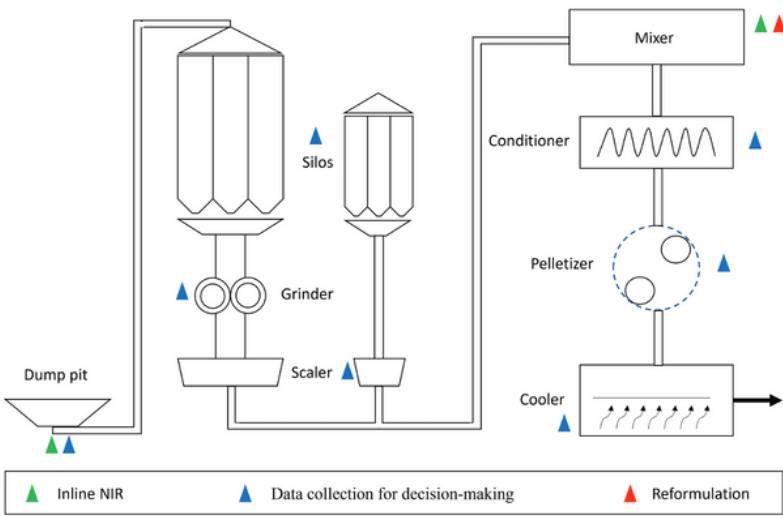


Fig. 'Lights out' manufacturing feed manufacturing process.

Review#3

Interactive effects of calcium, phosphorus, and exogenous phytase on growth performance and bone ash in broilers under Eimeria or necrotic enteritis infections: a systemic review and meta-analysis

This review analyzed the publication from 2000 to May 2023 and explored the interaction of calcium, phosphorus, and exogenous phytase on growth performance and bone ash in **broilers with Eimeria or necrotic enteritis infections**. Coccidiosis, necrotic enteritis, and improper calcium and phosphorus can reduce growth performance and bone quality. The efficacy of phytase on bone quality was compromised when broilers were infected with Eimeria or necrotic enteritis.

University of Georgia | [Link](#)

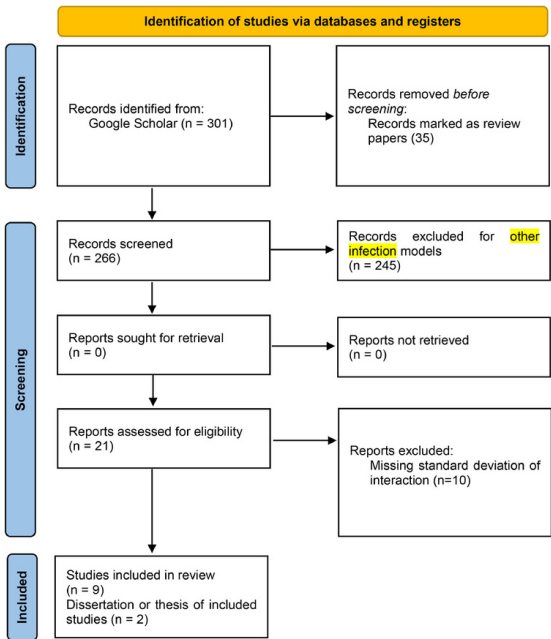


Fig. Flow diagram of the systematic review process.