



Department of Poultry Science
College of Agricultural & Environmental Sciences
UNIVERSITY OF GEORGIA

UGA POULTRY NUTRITION NEWSLETTER



What do you see in this picture? [Click here](#) to submit your answers.
The responses will be featured in the next issue.

January 2025

Editorial

Happy New Year, everyone! I hope you all enjoyed the holidays, and I look forward to seeing some of you at our International Poultry Short Course and IPPE! Be sure to check out the presentations from our lab in this newsletter!

We're excited to announce the upcoming **Poultry Nutrition 101** Online Course, which is currently in development. This course is designed for the general public, growers, industry professionals, and non-nutrition academic groups interested in poultry nutrition and feed management. This interactive course will provide fundamental and applied poultry nutrition knowledge. To learn more, connect with us at IPPE and visit the UGA Booth (B2104). Stay updated by [clicking here](#)!

This month, our comprehensive search captured 55 new publications in poultry nutrition (from Nov 10th to Dec 10th, 2024, Web of Science), featuring top contributions from *Poultry Science* (16), *Journal of Applied Poultry Science* (5), *Animal Nutrition* (4), *Journal of Animal Science* (3) and *Frontiers in Animal Science* (2). [Click to download](#) the complete list.

In this issue, we handpicked 17 studies focusing on broilers (8), broiler breeders (3), layers (1), Meta-analysis (1), and literature reviews (4). These studies span 15 research institutes across 7 countries. Additionally, we've updated the poultry events calendar to assist in your planning and curated the latest industry news to keep you informed.

Enjoy the reading and see you soon!

Dr. Chongxiao (Sean) Chen
Assistant Professor/ Extension Specialist
Department of Poultry Science,
University of Georgia





Broilers

In broilers, **Cu levels of 110, 220, and 330 mg/kg** caused mitochondria-mediated damage in splenocytes. Cu toxicity led to splenic injury through autophagy and apoptosis. However, no performance data were reported in this study.

Jiangxi Agricultural University (China) / [Link](#)

Reducing crude protein from 21% to 19% with balanced amino acids in broilers did not affect performance but improved nitrogen retention and the liver and heart's antioxidant capability. It also affected the absorption and utilization of multiple minerals, including P, Cu, Mn, Zn, and Fe.

Chinese Academy of Agricultural Sciences (China) / [Link](#)

Chicks with **higher body weight** on day 7 had greater relative gizzard weights, tibia bone ash, Na, P, and Rb, but lower Cd, Cs, and Pb. Meanwhile, high- and low-body weight birds had different ileal tissue transcriptomic profiles.

Technological University of the Shannon (Ireland) / [Link](#)

In broilers, **increasing dietary Na and Cl levels** (0.14%, 0.20%, 0.26%, 0.32%, 0.38%, and 0.44%) improved growth performance, daily water intake, excreta water content, tibial ash, ash Na content, and blood indicators (PCO_2 , HCO_3^- , TCO_2 , Na^+ , K^+ , Cl^- , BE, AG). However, feed/gain ratio, mortality, blood K^+ , OSM, GLU, UA, and heart, liver, and kidney indices decreased. The optimum level was recommended at 0.16%.

Yangzhou University (China) / [Link](#)

In broilers, adding **110 mg Mn / kg** (d 1–21) and **80 mg Mn / kg** (d 22–42) in either **organic or inorganic form** reduced abdominal fat deposition by increasing ATGL enzymes and gene expression and decreasing PPAR_γ and DGAT2 gene expression. Growth performance was not affected by additional Mn or source.

Yangzhou University (China) / [Link](#)

In broilers, regression equation prediction of **AMEn for fish meal** (2,886 to 3,157 kcal/kg) and **poultry by-products meal** (2,186 to 4,114 kcal/kg) resulted in the equation of ($\text{AMEn} = 35.658 \times \text{CP} + 61.975 \times \text{EE}$) and ($\text{AMEn} = 84.396 \times \text{EE} + 21.221 \times \text{CP}$).

University of Georgia (USA) / [Link](#)

In broilers, replacing rice bran oil with 50% **black soldier fly larva oil (BSFLO)** did not affect growth performance, hematology parameters (except lymphocytes %), blood plasma biochemistry (except AST and LD), carcass yield, and meat quality at d 42, but 75% BSFLO increased the FCR and decrease the 24 hours meat pH.

Khon Kaen University (Thailand) / [Link](#)



In broilers fed on **low protein diets**, an increase (110%) in dietary concentration of Lys and Arg or Met & Cys (only in females) increased growth performance. In contrast, an increase in BCAA and Thr concentration decreased the growth performance and breast % but increased fat %. Moreover, oxypurinol, pantothenic acid, and D-octopine were identified as biomarkers for assessing amino acid balance.

China Agricultural University (China) / [Link](#)

A meta-analysis of 32 studies (1965–2024) showed **Moringa oleifera leaf meal (MOLM)** could affect broiler growth performance, blood lipids, and hematological parameters. Up to 5% was recommended in broiler diets.

Universitas Gadjah Mada (Indonesia) / [Link](#)

Layers

Laying hens supplemented with **10 and 15 mg/kg yeast Zn and 80 mg/kg Mn-methionine** increased egg and shell weight, mRNA expression of Claudin2, AKP, and Ca_2^+ ATPase at 31 weeks compared to a control group. 15 mg/kg Zn further improved eggshell ultrastructure.

Wuhan Polytechnic University (China) / [Link](#)

Breeders

In broiler breeders, **dietary energy levels** affect the ovary's development during sexual maturity by regulating energy metabolism and biosynthesis of fatty acids and steroid hormones. High-energy diets (3122 kcal/kg) up-regulated dihydroacetone phosphate and alpha-linolenic acid, increased cholesterol reserves, and steroid hormone synthesis, while low-energy diets (2573 kcal/kg) were associated with higher glucose metabolism and glycolysis activity.

Sichuan Agricultural University (China) / [Link](#)

In broiler breeder roosters, lipid profiles in seminal plasma, whole semen, and sperm cells differed between high and low **sperm mobility** phenotypes. Furthermore, eight lipid species were determined to be optimal biomarker candidates for sperm mobility beginning at the mid-semen production phase.

Cobb-Vantress Inc (US) / [Link](#)

The broiler breeders with **higher eggshell quality** had higher plasma bone alkaline phosphatase, tibia ash%, tibia breaking strength, and lower plasma tartrate-resistant acid phosphatase (TRAP). The progeny showed the same trend.

University of Arkansas (USA) / [Link](#)



Reviews

Is it interesting to use distillers dried grains with solubles (DDGS) in ducks' diets?

DDGS are high in protein, energy, unsaturated fatty acids, phosphorous, xanthophylls, and non-starch polysaccharides. Few studies have looked at the use of DDGS in the diets of growing and laying ducks. This review covers varying levels of DDGS impacts on growth performance, digestibility, and mycotoxin contamination of DDGS in **meat and laying ducks**. No more than 25% corn DDGS (growing and finishing diets), 15% Sorghum DDGS, or 18% DDGS in laying ducks were recommended.

Université de Tours (France) / [Link](#)

Molecular and cellular markers in chickens exposed to stressors and the ability of feed supplements to overcome negative effects – a review

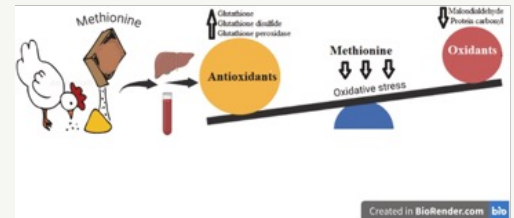
Stress factors can negatively affect intestinal permeability, villus height, nutrient uptake, increased inflammation, immuno-suppression, and reduced capacity to control oxidative damage. This review covers the impacts of multiple stress factors, including heat stress, bacterial challenges, toxins, and parasites, on gastrointestinal integrity and function, immune response, and antioxidant capacity. The potential use of feed additives to mitigate or prevent the adverse effects of these stressors was also discussed.

Islamic Azad University (Iran) / [Link](#)

Effect of dietary methionine and its analogs on oxidant/antioxidant status of blood and liver in broilers under normal condition or environmental stress: A systematic review and meta-analysis

Methionine is an essential sulfur-containing amino acid that plays an important role in the physical growth, production of DNA, RNA, and proteins, genetic regulation, immune functions, and cell function. It can be added to poultry feed in the form of L-methionine, D-methionine, or methionine analogs like DL-methionine dipeptide (DL-MMet) and 2-hydroxy-4-

(methylthio) butanoate (HMTBA, MHA). This meta-analysis of 15 studies focuses on the role of methionine and its analogs on broilers' oxidant/antioxidant status and how methionine supplementation can reduce oxidative stress and improve broilers' health under normal and environmental stress conditions.



Shahrekord University (Iran) / [Link](#)

An historical overview of zinc in poultry nutrition

Zinc is the **second most abundant trace mineral in the body** after iron, primarily found in the liver and bones. In addition to its stability as a cofactor, zinc plays a crucial role in egg production, shell quality, embryonic development, and skeletal formation. This review aims to explore the early history of zinc, examine multiple studies, and highlight the importance of dietary zinc in poultry nutrition, as well as its role as a cofactor in two enzymatic reactions (carbonic anhydrase and alkaline phosphatase).

Global Animal Products (USA) / [Link](#)



Meet us at IPPE!



January 27, 2025

Evaluation of interaction **effects** of **various levels** of **energy** and **amino acid density** in the finisher phase (29–42d) on Ross–708 broiler **performance** and **carcass yield**

Ali, M. *et al.*

Time: 1:15 – 1:30 pm / Room: B408



Dietary **25-hydroxyvitamin D₃** supplementation improves **vitamin D status** and **protects bone** and **gut health** in broilers **challenged with Eimeria spp**

Mejía-Abaunza, N. *et al.*

Time: 3:15 – 3:30 pm / Room: B407



Methodology of **egg white** preparation for analysis on **chemistry analyzer**

Fudge, C. *et al.*

Time: 4:00 – 6:00 pm / Poster: P278



Effect of an **herbal product** (Vermi) against **Histomonas meleagridis** in vitro

Ortiz, R.J.* *et al.*

Time: 4:00 – 6:00 pm / Poster: P288



Effect of an **herbal product** (Vermi) on the **embryonation** and **eggshell** integrity of **Heterakis gallinarum**

Romines, L.* *et al.*

Time: 4:00 – 6:00 pm / Poster: P287

* Undergraduates

Industry News

December, 2024 Business Update (Poultry World)

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

Top Feed Companies: 148 feed manufacturers rank in 2024 (Feed Strategy)

In 2023, 148 animal feed manufacturers worldwide reached or exceeded 1 million metric tons of compound feed production.

Which states lost the most commercial birds to HPAI in 2024? (WATT Poultry)

Seven states lost more than 1 million birds to avian influenza during the past year, while two lost more than 10 million. The top 3 are: California, Iowa, and Michigan.

US chicken sector strong going into 2025 (Poultry World)

Trump has nominated Brooke Rollins as agriculture secretary. If approved by the Senate, Rollins, who is chairman of a conservative think tank, would succeed Tom Vilsack.

Alternative destinations show strong demand for U.S. corn, USDA reports (Poultry Times)

- Corn remains the most widely produced feed grain in the U.S., ERS notes. It represents more than 95 percent of total production of feed grain and usage.



February

International Conference on Poultry Science | Lisbon Portugal | **3-4** | [Link](#)
Southeastern Grain and Feed Association Convention | Savannah GA | **19-21** | [Link](#)
NTF Annual Convection | Scottsdale AZ | **19-22** | [Link](#)

March

Food Safety Conferences | Hot Spring AR | **4-6** | [Link](#)
IPWA Annual Meeting | Bangkok Thailand | **11** | [Link](#)
NC Processing and Products Academy | Raleigh NC | **11-13** | [Link](#)
VIV Asia | Bangkok Thailand | **12-14** | [Link](#)
Purchasing and Ingredient Suppliers Conference | Orlando FL | **18-20** | [Link](#)
Feed Mill Management Seminar | Nashville TN | **20-21** | [Link](#)
Annual Meat Conference | Orlando FL | **24-26** | [Link](#)
Deep South Poultry Conference | Tifton GA | **26** | [Link](#)
Alumni & Friends Reception | Tifton GA | **TBD**

April

West Poultry Disease Conference | Calgary Canada | **7-9** | [Link](#)
North Central Avian Disease Conferences | Minneapolis MN | **7-8** | [Link](#)
PEAK | Minneapolis MN | **8-10** | [Link](#)
UGA Hot Weather Workshop | Athens GA | **15-17** | [Link](#)
Workforce Success and Engagement Conference | Destin FL | **16-18** | [Link](#)
AFGA Nutriron Seminar | Huntsville AL | **22-24** | [Link](#)
Stakeholders Summit | Arlington VA | **30-2** | [Link](#)
UGA Hatchery Workshop | Athens GA | **TBD** | [Link](#)
GPF Annual Meeting and Legacy Golf Tournament | TBD | **TBD** | [Link](#)

May

Precision Poultry Seminar | Virtual | **6** | [Link](#)
Poultry Processor Workshop | Nashville TN | **13-14** | [Link](#)
Texas Commercial Egg Clinic | Bryan TX | **16** | [Link](#)
Poultry Health Management School | Ames IA | **19-22** | [Link](#)

June

FSMA PCQI Training | Nashville TN | **15-17** | [Link](#)
Avian Academy Teacher Education Program 2.0 | Athens GA | **16-18** | [Link](#)
Financial Management Seminar | Amelia Island FL | **16-18** | [Link](#)
Southeast Egg Industry Regional Conference | Hilton Head SC | **17-19** | [Link](#)
Avian Academy Teacher Education Program | Athens GA | **23-25** | [Link](#)
24th European Symposium on Poultry Nutrition | Maastricht The Netherlands | **23-26** | [Link](#)

July

Hatchery Breeder Clinic | Nashville TN | **8-9** | [Link](#)
Poultry Science Association Annual Meeting | Raleigh NC | **14-17** | [Link](#)
Texas Poultry Federation Annual Convention | San Antonio TX | **18-20** | [Link](#)
State 4-H Congress | Atlanta GA | **22-25** | [Link](#)
Chicken Marketing Summit | Savannah GA | **28-30** | [Link](#)
AAAP 68th Annual Meeting | Portland, OR | **29-31** | [Link](#)
SC Poultry Federation Annual Conference | TBD | **TBD** | [Link](#)

August

National Safety Conference for the Poultry Industry | Destin FL | **18-20** | [Link](#)
International Poultry Pathology and Production Seminar | Athens GA | **18-20** | [Link](#)
Women's Leadership Conference | Destin FL | **21-22** | [Link](#)

Edited by

Nicolás Mejía-Abaunza, DVM., Master's Student
Federico Etcheverry, Ag. Eng., M.S., Ph.D. Student
Chongxiao (Sean) Chen DVM., Ph.D., Assistant Professor

September

Liquid Feed Symposium | Fort Worth TX | **9-11** | [Link](#)
Shell Egg Academy | TBD | **9-11** | [Link](#)
California Poultry Federation Annual Conference | Monterey CA | **11-12** | [Link](#)
NTF Leadership Conference | Washington D.C. | **15-17** | [Link](#)
NPFDA 2025 Fall Meeting | Providence RI | **15-18** | [Link](#)
Environmental Management Seminar | Destin FL | **18-19** | [Link](#)
UGA Layers Conference | Virtual | **22** | [Link](#)
Arkansas Nutrition Conference | Rogers AR | **23-25** | [Link](#)
UGA Broiler Conference | Athens GA | **24** | [Link](#)
Poultry Sustainability and Welfare Summit | TBD | **TBD** | [Link](#)
60th National Meeting on Poultry Health, Processing, and Live Production | TBD | **TBD** | [Link](#)
International Avian Influenza and One Health Emerging Issues Summit | TBD | **TBD** | [Link](#)

October

GA National Fair | Perry GA | **2-12** | [Link](#)
XXIIrd WVPA Congress | Kuching Malaysia | **6-10** | [Link](#)
PSA Pacific Rim Scientific Conferences | Macau China | **13-16** | [Link](#)
Sunbelt Ag Expo | Moultrie GA | **14-16** | [Link](#)
Poultry Protein & Fat Seminar | Nashville TN | **15-16** | [Link](#)
Georgia Poultry Strong | Peachtree Pointe @ Lanier Islands GA | **18** | [Link](#)
Southern Feed & Grain Convection | Orange Beach AL | **26-29** | [Link](#)
International Conference on Poultry Science | Lisbon Portugal | **28-29** | [Link](#)
Poultry Symposium for Production & Processing | TBD | **TBD** | [Link](#)
PSA Professional Development Conference | TBD | **TBD** | [Link](#)

November

Poultry Tech Summit | Atlanta GA | **3-6** | [Link](#)
Equipment Manufacturers Conference | Rancho Mirage CA | **5-7** | [Link](#)
Cold Weather Management Workshop | Athens GA | **TBD** | [Link](#)
Symposium on Gut Health in Production of Food Animals | St Louis MO | **TBD** | [Link](#)
PS Open House (Pre-professional) | Athens GA | **TBD** | [Link](#)

2026 - January

NPFDA Annual Convention and Showcase | Atlanta GA | **26-29** | [Link](#)
International Production and Processing Expo | Atlanta GA | **27-29** | [Link](#)
International Poultry Short Course | Athens GA | **TBD** | [Link](#)
Animal Agriculture Sustainability Summit | Atlanta GA | **TBD**
AFIA Feed Education Program | Atlanta GA | **TBD** | [Link](#)

TBD - Upcoming

9th International Conference on Poultry Intestinal Health | Istanbul, Turkey | **April 22-24 (2026)** | [Link](#)
Feed Industry Institute | Minneapolis MN | **June 15-18 (2026)** | [Link](#)
World's Poultry Congress | Toronto Canada | **July 13-17 (2026)** | [Link](#)
Food Animal Innovation Summit | Raleigh NC | **TBD** | [Link](#)
Live Production, Welfare & Biosecurity Seminar | TBD | **TBD** | [Link](#)

Last updated Jan 2025

Contact us sean.chen@uga.edu



The Editorial Team



Dr. Chongxiao (Sean) Chen,
D.V.M., Ph.D.
Assistant Professor/ Extension Specialist
Editor-in-Chief



Federico Etcheverry,
Ag. Eng., M.C., Ph.D. student
Graduate Research Assistant
Co-editor, graphic designer, translator
(Spanish & Portuguese)



Nicolás Mejía-Abaunza,
D.V.M., M.S. student
Graduate Research Assistant
Web designer, social media manager,
research summary writer, translation
proofreader (Spanish)



Catherine Fudge,
B.S., M.S., Ph.D. student
Graduate Research Assistant
Research summary writer






Muhammad Ali,
D.V.M., M.S., Ph.D. student
Graduate Research Assistant
Research summary writer



Allison J.T. Kawaoku,
D.V.M., M.S. student
Graduate Research Assistant
Research summary writer, translation
proofreader (Portuguese)



-  Check www.poultrynutritionhub.com for more.
-  [Subscribe](#) to UGA Poultry Nutrition Newsletter.
-  Check out [FeedMixer](#): feed formulation at your fingertips.

Follow us in social media:



Instagram



LinkedIn