



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

UGA POULTRY NUTRITION NEWSLETTER



Picture taken by Nicolás Mejía-Abaunza

How does feeding broilers a single-phase diet (starter, grower, or finisher only) affect growth performance compared to stage feeding?

[Click here](#) to submit your answers. The responses will be featured in the next issue.

April 2025

Editorial

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. Stay updated by [Clicking here](#)!

This month, our comprehensive search captured 73 new publications in poultry nutrition (from Feb 10th to March 10th, 2025, Web of Science), featuring top contributions from *Poultry Science* (14), *Tropical Animal Health and Production* (9) and *Animal Nutrition* (5). ([Download the complete list here](#))

In this issue, we handpicked 16 studies focusing on broilers (7), layers (1), quails (2), meta-analysis (2), and literature reviews (4). These studies span 16 research institutes across 9 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!

CHEN LAB

Dr. Chongxiao (Sean) Chen
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Broilers

Delay placement by 24 hours show long term negative effects on growth performance up to 27d in females and d 34 in males. It also affects the antioxidant status, gut microbiome at different levels. Nutritional supplements (concentrated various nutrients + probiotic) partly alleviate these negative effects in short term but shows variation in female and male birds.

INRAE (France) / [Link](#)

In broilers, **high stocking density** reduced growth performance, gut morphology, tight junction protein expression, increased inflammatory genes, and have negative effects on the gut microbiome.

Shanxi Agricultural University College of Animal Science (China) / [Link](#)

Inclusion of **partially defatted black soldier fly larvae meal** (6 or 12%) linearly improved BW and FCR. However, under coccidiosis challenge, it shows adverse effects on BWG, FI, FCR, N utilization, gut health and inflammatory responses.

Purdue University (USA) / [Link](#)

45 studies (from 1991 to 2024) and 198 experimental treatments related to **dietary fibers** (DF) were analyzed by three statistical models. Up to 50g/kg DM of insoluble dietary fiber improved nutrient digestibility, while more than 20g/kg DM of soluble dietary fibers could reduce digestibility by 40–50%.

Wageningen University & Research (The Netherlands) / [Link](#)

Male breeders (29 days of age) **exposed to cyclic heat stress** (31°C for 12 h/day) exhibited a decreased serotonergic response in ileal and cecal tissues at 12h. Additionally, cyclic heat stress for 6 days altered the cecal microbiome and its function, as well as reduced microorganisms associated with serotonin metabolism.

United States Department of Agriculture (USA) / [Link](#)

Low residual feed intake broilers present better feed efficiency with higher lipid metabolism gene expression (MGAT5, GABRA4, LRRC4C), bile acid content, and reduced hepatic lipid accumulation, However, they are more susceptible to hepatic oxidative stress.

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

Anti-microbial resistant genes were detected in 58% of *Salmonella* samples collected from broiler farms. *Salmonella* detected in NAE broiler complexes were 7 times more likely to be resistant to multiple antibiotics than their conventional counterparts. 80% of Kentucky *Salmonella* isolates were resistant to tetracycline or sulfisoxazole.

Mississippi State University (USA) / [Link](#)



This dose-response meta-analysis covers the 12 studies conducted from 2009 to 2024 on the **nano-selenium** (Nano-Se) supplementation effect on broilers. Optimal dosage inclusion ranged between 0.20–0.63 mg/kg for all studied variables, with optimal dosage of 0.35, 0.25, and 0.30 mg/kg for body weight gain, breast proportion and FCR, respectively. Furthermore, Nano-Se supplementation showed a linear increase and decrease effect for FI and abdominal fat while a non-linear effect for blood GPx activity.

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

This meta-analysis covers 19 studies (2001–2003) conducted to examine the potential of **replacing soybean meal with canola meal** (CM) in broiler diets. The pooled results indicated that CM inclusion negatively impacted feed intake, average weight gain, and FCR, likely due to its anti-nutritional factors. Meta-regression revealed the CM treatment methods as strong predictors for feed intake, average weight gain, and FCR, with age influencing feed intake only, highlighting the importance of optimizing CM treatment methods.

University of Mpumalanga (South Africa) / [Link](#)

Layers

The interaction between **energy** and **starch:fat ratio** in pullets showed low energy diet reduced energy metabolism markers. However, increasing starch: fat ratio from 10:1 to 20:1, can improve intestinal energy metabolism by stimulating AMPK pathway, and ATP production.

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

Quails

In dexamethasone-stressed quail cocks, supplement with **selenium** (0.03 mg/kg), **vitamin E** (180 mg/kg) and their combinations restored body weight gain and feed intake, semen motility, and reduced oxidative stresses.

University of Debrecen (Hungary) / [Link](#)

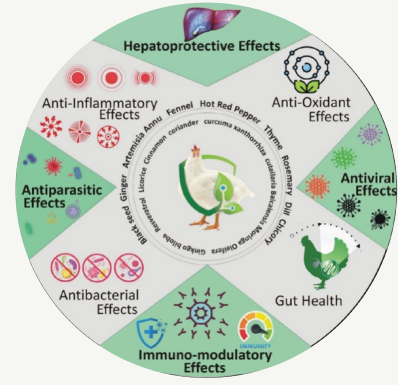
In quail, 0.4 mg/kg **selenium-nanoparticles** increased bioaccumulation of selenium in feathers, eggshells and egg content, with less DNA damages compare to 0.2, and 0.4 mg/kg Sodium selenite.

The University of Agriculture (Pakistan) / [Link](#)

Reviews

An in-depth overview of the nutritional advantages of medicinal plant supplementation in poultry feed

This review highlights the nutritional and health benefits of **medicinal plants** (MPs) (e.g., garlic, oregano, moringa, green tea, lavender), rich in active substances such as flavonoids, alkaloids, saponins, and polyphenols. MPs act as growth-promoting, antimicrobial, anti-inflammatory, antioxidant, and immunomodulatory effects. The author concludes that their effectiveness depends on dosage, formulation, and application. Microencapsulated extracts, such as organic acids and essential oils, show potential as AGP substitutes, improving gut health and performance by modulating gut bacteria.



The figure illustrates the multifaceted biological impacts of medicinal herbs.

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

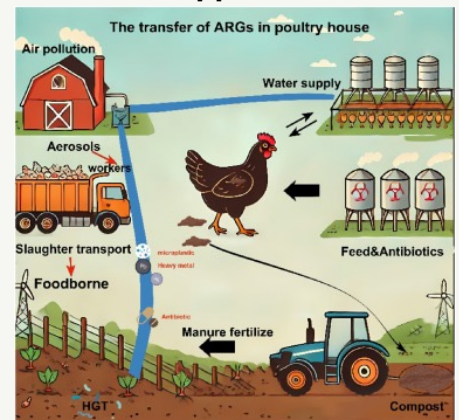
Enhancing poultry health and productivity through the liver–gut axis with integrated nutritional and immunological approaches: a mini-review

The **liver-gut axis** is important for health and production in poultry through the regulation of digestion, detoxification, immunity, and metabolism. This review discusses nutritional and immunological strategies including flavonoids, vitamins, amino acids, probiotics, and beta-glucans to improve the liver-gut axis. Novel and emerging technologies such as precision agriculture and metagenomics provide new solutions for challenges like antibiotic resistance and environmental stressors.

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

Antibiotic resistance gene pollution in poultry farming environments and approaches for mitigation: A system review

The emergence of **antibiotic-resistant genes** poses a risk to the public as well as ecosystems. Multiple sources disseminate antibiotic-resistant bacteria including manure, wastewater, and air. Current strategies to control the dissemination of antibiotic resistance focus on reduced antibiotic use, manure treatment, farming practices, and water purification. More research is needed to effectively manage and control antibiotic resistance pollution.



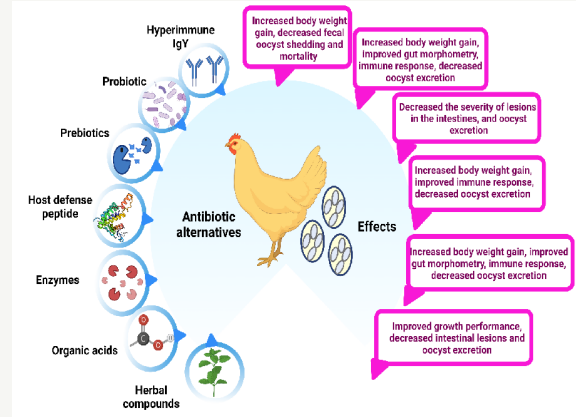
Shaoquan University (China) / [Link](#)



Alternatives to antibiotics against coccidiosis for poultry production: the relationship between immunity and coccidiosis management – a comprehensive review

Coccidiosis disrupts the immune system and damages the intestinal tract. Chickens respond to *Eimeria* infections by releasing cytokines and chemokines; however, this response is often insufficient. Vaccine-candidate (recombinant antigens/ molecular vaccine) can help the host reduce the adverse effects of *Eimeria* while enhancing the host's immune response, providing an alternative strategy for disease control. This comprehensive review examines the *Eimeria* life cycle, host immune response, vaccine types, and alternative approaches to enhance host resilience, aiming for effective disease management and control.

Zagazig University (Egypt) / [Link](#)



Anticoccidial drug alternatives to control coccidiostats in chickens

Survey

Response for the previous survey

What are the 3 main differences between broiler and turkey nutritional requirements?

Turkeys and broilers differ in their nutritional requirements due to turkeys' larger body size and longer growth cycle. Dr. China Jacobs (CSA Animal Nutrition) provides an excellent summary of these differences in this issue:



“There are quite a few but protein and amino acids levels, vitamin and mineral levels, fat levels (energy). Turkeys require much higher levels of amino acids for growth, higher minerals for leg development, and we use much higher fat levels to drive intake.”



Meet our graduates

Mohan Naidu Korada

I recently completed my masters in Poultry Science with a focus on nutritional immunology under Dr. Ramesh Selvaraj and defended my research on a novel *Salmonella* killed vaccines for layers. My research was essentially targeted at the development of preventive strategies for the control of *Salmonella* in poultry for public health and poultry welfare. I am a qualified veterinarian from India, now certified through the North American Veterinary Licensing Examination. My enthusiasm for animal health leads me to translate research into practice. **Although my main research focus has been poultry health, I am enthusiastic about contributing to veterinary medicine involving a variety of animal species by using evidence-based approaches to improve disease prevention and welfare outcomes.** In the future, I am looking forward to exploring innovative applications in animal health and nutrition especially around improving disease resistance and animal well-being.



Industry News

[March, 2025 Business Update \(Poultry World\)](#)

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

[2025 US poultry market trends: An uphill battle \(WATT Poultry\)](#)

The U.S. poultry market faces early 2025 challenges from disease, inflation, and trade issues. Chicken remains in demand, but hatchability and turkey production are down. Growth potential exists despite setbacks.

[US consumer sentiment declines amid tariff woes \(The Poultry Site\)](#)

U.S. consumer sentiment hit a three-year low in April, with inflation expectations at their highest since 1981. Trade tensions, rising tariffs, and market instability have fueled recession fears and shaken labor market confidence, complicating the Fed's policy outlook.

[Egg imports, egg prices, and bird flu updates \(Poultry Times\)](#)

U.S. egg production is down in 2025 due to avian flu losses, prompting record imports and reduced exports. Prices fell sharply at the wholesale level, but retail prices remain high. Production forecasts have been lowered amid a shrinking laying flock.



May

MSU Layer Workshop | Mississippi State MS | [1](#) | [Link](#)
Precision Poultry Seminar | Virtual | [6](#) | [Link](#)
Poultry Processor Workshop | Nashville TN | [13-14](#) | [Link](#)
Texas Commercial Egg Clinic | Bryan TX | [15](#) | [Link](#)
Poultry Health Management School | Ames IA | [20-23](#) | [Link](#)

June

FSPCA 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](#)
SC Poultry Federation Annual Conference | Charleston SC | [10-12](#) | [Link](#)
Poultry Science Association Annual Meeting | Raleigh NC | [14-17](#) | [Link](#)
Texas Poultry Federation Annual Convention | San Antonio TX | [17-19](#) | [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](#)

August

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

September

Liquid Feed Symposium | Fort Worth TX | [9-11](#) | [Link](#)
Shell Egg Academy | West Lafayette IN | [9-11](#) | [Link](#)
XXVII Congreso Centro Americano y del Caribe de Avicultura | Ciudad de Panama Panama | [10-12](#) | [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](#)
60th National Meeting on Poultry Health, Processing, and Live Production | Ocean City MD | [29-1](#) | [Link](#)

October

GA National Fair | Perry GA | [2-12](#) | [Link](#)
XXIIIrd 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 Symposium for Production & Processing | Rogers AK | [14-15](#) | [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](#)
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 | TBD | [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 & Processing Expo | Atlanta GA | [27-29](#) | [Link](#)
AFIA Feed Education Program | Atlanta GA | [27-29](#) | [Link](#)
International Poultry Short Course | Athens GA | [TBD](#) | [Link](#)

February

International Conference on Poultry Science | Lisbon Portugal | [8-9](#) | [Link](#)
Southeastern Grain & Feed Association Convention | Charleston SC | [18-20](#) | [Link](#)
NTF Annual Convection | Fort Lauderdale FL | [18-21](#) | [Link](#)

March

Annual Meat Conference | Oxon Hill MD | [2-4](#) | [Link](#)
Purchasing and Ingredient Suppliers Conference | Fort Worth TX | [9-11](#) | [Link](#)
VIV Health & Nutrition | Bangkok Thailand | [10-12](#) | [Link](#)
West Poultry Disease Conference | San Diego CA | [16-18](#) | [Link](#)
Food Safety Conferences | TBD | [TBD](#) | [Link](#)
IPWA Annual Meeting | TBD | [TBD](#) | [Link](#)
NC Processing & Products Academy | TBD | [TBD](#) | [Link](#)
Feed Mill Management Seminar | TBD | [TBD](#) | [Link](#)
Congreso Internacional AVEM | TBD | [TBD](#) | [Link](#)
Deep South Poultry Conference | Tifton GA | [TBD](#) | [Link](#)

April

9th International Conference on Poultry Intestinal Health | Istanbul, Turkey | [22-24](#) | [Link](#)
North Central Avian Disease Conferences | TBD | [TBD](#) | [Link](#)
PEAK | Minneapolis MN | [TBD](#) | [Link](#)
UGA Hot Weather Workshop | Athens GA | [TBD](#) | [Link](#)
Poultry Market Situation | TBD | [TBD](#) | [Link](#)
Workforce Success & Engagement Conference | TBD | [TBD](#) | [Link](#)
AFGA Nutrition Seminar | TBD | [TBD](#) | [Link](#)
GPF Annual Meeting & Legacy Golf Tournament | TBD | [TBD](#) | [Link](#)
Stakeholders Summit | TBD | [TBD](#) | [Link](#)

TBD - Upcoming

Feed Industry Institute | Minneapolis MN | [June 15-18 \(2026\)](#) | [Link](#)
World's Poultry Congress | Toronto Canada | [July 13-17 \(2026\)](#) | [Link](#)
SIAVS | Sao Paulo Brazil | [August 4-6 \(2026\)](#) | [Link](#)
Latin America Poultry Congress | Ciudad de Guatemala Guatemala | [November 11-13 \(2026\)](#) | [Link](#)

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