



Department of Poultry Science

College of Agricultural & Environmental Sciences

UNIVERSITY OF GEORGIA

UGA Poultry Nutrition Newsletter

August, 2023



Latest poultry nutrition research at a glance

5 minutes of reading to catch up with the selected research published last month.

[View and download the research summary](#)

Upcoming Poultry Events

2023

- 8/29-8/31 [Arkansas Nutrition Conference, Littler Rock, AR \(New Location\)](#)
- 9/12-9/14 [Liquid Feed Symposium, Louisville, KY](#)
- 9/25-9/27 [58th National Meeting on Poultry Health, Processing, and Live Production, Ocean City, MD](#)
- 9/25 [Layer Conference, Athens, GA](#)
- 9/27 [Broiler Conference, Athens, GA](#)

- 10/4 [Broiler Breeder Management Seminar, Athens GA](#)
- 10/4 [GPLN Annual Meeting, Gainesville, GA](#)
- 10/6 Homecoming tailgate & new poultry science building grand opening, Athens, GA
- 10/17-10/19 [Sunbelt Ag Expo, Moultrie, GA](#)
- 10/29-11/1 [GPF Poultry Strong, Lanier Islands, GA](#)
- 10/29-11/1 [Symposium on Gut Health in Production of Food Animals, St. Louis, MO](#)
- 11/6-11/8 [Poultry Tech Summit, Atlanta, GA](#)
- 11/14-11/16 [Cold weather workshop, Athens, GA](#)

2023

- 1/23-1/26 [International short course, Athens, GA](#)
- 1/29-2/1 [ISPF/IPPE, Atlanta, GA](#)

Poultry News at a glance

- **July feed update: What did you miss? (All about Feed)**
 - The latest business developments and updates from around the world this month to ensure you don't miss a thing in the global animal feed industry.
- **Most poultry consumers buy for price, not sustainability (WATT Poultry)**
 - The survey involved 925 adult American citizens who recently purchased poultry products. Even though poultry consumers are putting more importance on sustainability, it's not the primary consideration when making a purchasing decision in the grocery store.
- **Cal-Maine: 575% more in operating income, high egg prices (WATT Poultry)**
 - Cal-Maine Foods Inc. reported a 575% increased income compared to fiscal 2022, which attributed the major increase to high shell egg prices, due to the impact of highly pathogenic avian influenza (HPAI) on the industry, and increased demand.
- **Half US corn, soybean crops in drought conditions (Feed Strategy)**
 - In late July, drought expanded across U.S. corn-growing areas, achieving the second-highest levels in 24 years. 59% of U.S. corn affected by moderate or worse drought by end of July, and 60% of soybean production areas experiencing drought conditions.

- **12 chicken consumption trends that will stick** (WATT Poultry)
 - 1. AI revolution; 2. Automation everywhere; 3. Eco-concerns; 4. No more middle; 5. Indulgent wellness; 6. Meat alternatives enter the flavor battle; 7. Evolved snacking; 8. Restaurants 2.0; 9. Foodservice/retail blur; 10. Celebrities come for chefs; 11. New third place; 12. Pet food upgrade.
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UGA Poultry Research Highlight



Dr. Oluyinka Olukosi, an associate professor, specializes in poultry nutrition, feedstuffs evaluation, nutrition intervention to reduce nutrient excretion, and nutrition & gut health interactions. His recent research focuses on exogenous enzymes for improved growth performance through their effects on gut health. **Lin Yang**, his Ph.D. student, now a Postdoc at Poultry Science, Auburn University, worked on this project. His group found that the fiber content of the diet is a key driver for the quantity and profile of digesta oligosaccharides in

the small intestine. Adding xylanase and protease partly reverses the negative effect of an *Eimeria* challenge on the intestinal tight junction and nutrient transporter genes. Furthermore, supplementation of protease and xylanase decreased the branched-short-chain fatty acids and protein in the ceca of *Eimeria* challenged broilers, thus promoting gut health.

[Learn more about the research](#)

Intrigued by Dr. Olukosi's research and lab? Reach out to the team:

[Email](#)

[Website](#)

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In this issue, you will read research summaries from
7 Broilers /1 Broiler & Turkey studies
1 Layer /1 Goose/1 Quail study
3 Literature reviews
from 14 research institutes in 10 countries



POULTRY NUTRITION RESEARCH SUMMARY

Chongxiao (Sean) Chen*, **Xixi Chen #**, **Catherine Fudge***, **Muhammad Ali***,
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Nutribins LLC

LATEST NUTRITION RESEARCH AT A GLANCE

POULTRY

In broilers, supplementing ***Bacillus subtilis*** at 1000 ppm or **enzyme mixture** (NSPs enzymes and protease) at 1000 ppm improved performance and regulated intestinal microbiota during certain growth phases. The *Bacillus subtilis* treatment had similar overall ADG compared to the antibiotic control, while supporting the proliferation of *Lactobacillus* and inhibition of *E. Coli* and *C. Welchii*.

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

In broilers between 19 to 40 days of age, supplementing **dried olive pulp** (6%) under severe heat stress improved body weight, reduced body temperature, and reduced panting behavior on day 26.

Hellenic Agricultural Organization -Demeter/ [Link](#)

In broilers, **enzymatic-modified canola meal** (4 g/kg of Pectinase A, Pectinase B, Xylanase, and 0.2 g/kg of invertase for 48 h at 40 C) increased AMEn by 30.9% compared to control canola meal, but did not affect standardized ileal AA digestibility. The enzymatic modification also decreased the NSP content and pH of the canola meal.

University of Manitoba /[Link](#)

In broilers, supplementing 0.5 % or 1.0% **nettle essential oil** (*Urtica dioica L.*) improved body weight, breast muscle yield, and FCR at d 42. No effect was observed on meat pH, drip loss, carcass yield, and organ weight except for increased drumstick weight and decreased viscera weight.

University Business Academy in Novi Sad /[Link](#)

In broilers fed an aP- and Ca-deficient diet, **phytase** supplementation (1,000 and 1,500 FTU/kg) resulted in better body weight gain, feed intake, immune functions, and higher serum Ca and P concentration.

Dankook National University /[Link](#)

In broilers, supplementation of **Tea Tree oil** (50-200 mg/kg) for 28 days improved body weight and FCR, modulated immunity and improved intestinal morphology.

University of Arkansas /[Link](#)

When broilers (15-26d) were fed **2 energy densities** (13.0 and 12.5 MJ/kg ME) and **3 crude protein levels** (210, 190, 170 g/kg), 17% CP lowered BW by 12% and improved FCR by 5 points when compared to the 21% CP group; Reducing dietary CP increased AME, while reducing energy densities decreased AME.

The University of Sydney /[Link](#)

In broilers and turkeys (0-28d) fed **wheat or corn-based diet**, with or without supplementation of **multi-enzyme** (xylanase 800 U/kg + beta-glucanase 160 U/kg), it was found that in broilers, wheat diets increased butyric acid concentration and enzyme improved FCR; in turkeys, wheat diets improved FCR while enzyme only improved AMEn without affecting FCR. Grain type and enzyme did not affect growth in both species.

University of Guelph /[Link](#)

When comparing different **palm oils (crude palm oil, red palm oil, refined palm oil), palm kernel oil and soybean oil** in laying hens, palm oils with high antioxidant content (crude palm oil and red palm oil) reduced the production of antioxidant enzymes in the intestinal mucosa, serum, and liver. This may be related to the fact that these palm oils reduce the animals' oxidative reactions.

Universiti Putra Malaysia /[Link](#)

POULTRY

LATEST NUTRITION RESEARCH AT A GLANCE

In Yangzhou geese at the late laying stage of 64 weeks, **high dietary energy level** (ME = 11.75 MJ/kg) resulted in higher lipid deposition and lipid synthesis-related gene expressions, and reduction in hatchability, ovarian weight, and prolactin hormone. A dietary energy level of 10.134 to 10.284 MJ/kg is recommended for breeding goose.

Anhui Agricultural University / [Link](#)

In Japanese quails, supplementation of **0.5% turmeric + 0.5% black pepper** reduced serum levels of cholesterol and saturated fatty acids, increased total polyunsaturated fatty acid concentration and had positive effects on intestinal morphology. Turmeric alone improved growth performance.

Gorgan University / [Link](#)

Review#1

Physiology of lipid digestion and absorption in poultry | exogenous emulsifiers

This review summarized the **lipid digestion and absorption** process in poultry at different physiological limitations by age, as well as the roles that lipids play in diet performance and whole-body metabolism. Subsequently, the physiological responses resulting from the dietary supplementation of **exogenous emulsifiers** as a strategy for improved lipid utilization in broiler nutrition are appraised.

Chungnam National University / [Link](#)

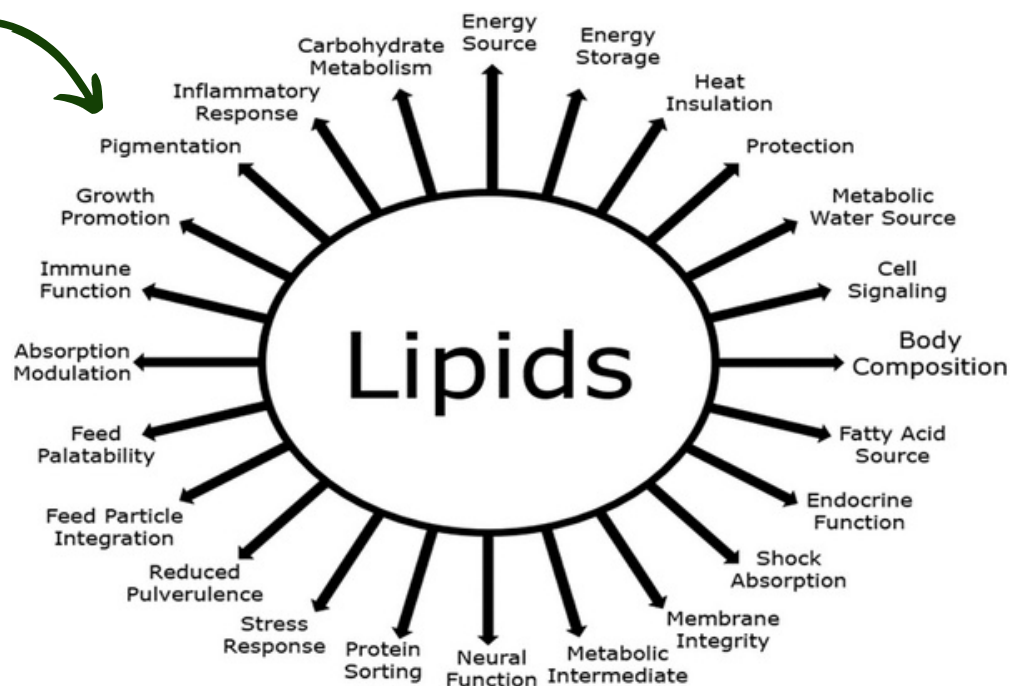


Fig. Important roles of lipids in diets and whole-body metabolism.

Review#2

Relationship between nutrition and development of food pad dermatitis

Footpad dermatitis (FPD) is a common problem in chicken production, causing inflammation or necrotic enteritis of the plantar surface of the footpads. It results in decreased activity of birds, less consumption of feed or water, and sometimes mortality. It raises the economic as well as welfare issues. Different factors, including nutrition, management, and genetics, can cause FPD. This review article summarizes the various nutrition issues, including NSP substances, low-energy diets, high-protein in diets, and imbalances of dietary minerals that can lead to this condition.

Hungarian University / [Link](#)

Review#3

Emergence of hemp as feed for poultry

The use of **hemp products** has arisen in the last few years as a feed and fiber source though it has not been without controversy. Hemp and its products contain crude protein levels, phenols, oil, vitamins, and minerals. The main concern for this crop use in food animals is its safety for the consumer. This review article summarizes the current research focusing on using hemp seed, hemp seed products and oil in broiler and laying hen feed and its effects on egg and meat quality.

Tarbiat Modares University / [Link](#)