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## Department of Poultry Science

*College of Agricultural & Environmental Sciences*

**UNIVERSITY OF GEORGIA**

# UGA Poultry Nutrition Newsletter

June, 2023



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## Upcoming Poultry Events

### 2023

- 6/11-6/14 [AAAP Annual Meeting, Jacksonville, FL](#)
  - 7/10-13 [Poultry Science Association Annual Meeting, Philadelphia, PA](#)
  - 7/31-8/2 [Chicken Marketing Summit, Miramar Beach, FL](#)
  - 8/7 [Poultry Protein & Fat Seminar, Nashville, TN](#)
  - 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](#)
  - 10/29-11/1 [Symposium on Gut Health in Production of Food Animals, St. Louis, MO](#)
  - 11/6-11/8 [Poultry Tech Summit, Atlanta, GA](#)
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## Poultry News at a glance

- **April 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.
  - **Top 3 challenges impacting the animal feed industry in 2023 (Feed&Grain)**  
- The North American animal feed industry is looking at a challenging year in 2023. Supply chain woes, a continued labor crisis and high inflation are the top issues heading into the new year.
  - **Bill would streamline FDA approval of feed additives (Feed Strategy)**  
- Bipartisan legislation introduced in US Senate to establish a new pathway at the FDA for novel feed additives that increase livestock efficiency and production. The Innovative FEED Act would modernize the approval process for animal feed which is applauded by industry groups.
  - **Cargill confirms sale of its poultry business in China (Meat + Poultry)**  
-Cargill to sell China poultry unit to private equity firm DCP Capital. The transaction includes all Cargill Protein China entities in Chuzhou in the Anhui province, including farm locations and associated manufacturing sites.
  - **US make rare soybean purchase from Brazil (The Poultry Site)**  
- Brazil is exporting 178,800 tonnes of soybeans to buyers in the United States. The buyers are Perdue Farms and Archer-Daniels-Midland Co. The country has surpassed the United States in exports of soy and, more recently, corn.
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2023 JUNE

In this issue, you will read research summaries from  
11 Broilers studies  
1 Layer/1 Duck study  
3 Literature review  
from 16 research institutes in 10 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, **hygienic pelleted diets** (88°C for 60 seconds and held for 6 minutes in the activated hygieniser) decreased ileal digestibility of amino acids compared to feed pelleted at a standard temperature of 77°C. Broiler fed hygienic pelleted feed required a 10% increase in digestible lysine to meet current broiler nutrition standards.

*West Virginia State University/[Link](#)*

In broiler breeders, providing 500 g/MT **microencapsulated blend of citric acid, sorbic acid, thymol and vanillin**, modulates the microbiome both in richness and evenness. During a necrotic enteritis challenge, the microencapsulated feed additive increased the abundance of beneficial bacteria phyla in comparison to non-supplemented breeders.

*University of Wyoming/[Link](#)*



In broiler chickens, feeding **Lactobacillus reuteri SL001 isolated from rabbits**, promoted the growth performance of broilers, strengthened immunity, and improved antioxidant stress as well as intestinal morphology and microbiota,

*Southwest University /[Link](#)*

In broilers, **organic selenium (Se)** enriched diets (0.3 mg/kg as selenized yeast) resulted in better growth performance and enhanced Se concentration in breast muscle as compared to inorganic Se (0.3 mg/kg as sodium selenite). Meanwhile, no interaction was found between dietary Se supplementation and coccidiosis conditions in growth performance, intestinal health, oocyst shedding, and tissue Se concentration.

*USDA /[Link](#)*

In broilers, administering **Gallic Acid** at 0.06% in corn-soybean-gluten meal-based diets showed better body weight gain, increased dry matter and energy digestibility. However, there was no significant effect on feed intake, FCR, excreta score, footpad lesion, tibia ash, and meat quality (except meat yellowness).

*Dankook University /[Link](#)*

In broilers, different dosages of **hydroxy compounds of the Cu and Zn** in comparison to sulphate compounds showed improved skin strength, bone breaking strength, bone ash, and mineral concentration in the tibia and femur with no effect on hematological parameters.

*Sao Paulo State University /[Link](#)*

In broilers raised under summer conditions, diets supplemented with **Choline Chloride** (400 to 2,000 mg/kg) with **reduced methionine** (0.15%) showed better FCR and improved feed intake without significantly affecting body weight gain and mortality at 41 d. It also resulted in higher breast weight/yield, an increased incidence of muscle myopathies (wooden breast and white striping), and reduced wing, thigh, and drumstick yield.

*Auburn University /[Link](#)*



# POULTRY

# LATEST NUTRITION RESEARCH AT A GLANCE

In broilers, feeding **isocaloric but low protein diets** (- 1.5% ) did not affect the body weight but improved relative breast muscle yield, N retention, drip loss and reduced N excretion at 41d. No significant effect was observed on other production parameters, pH, and NH<sub>4</sub><sup>+</sup> nitrogen. But reducing the AMEn by 1.5 and 3 % in low protein diets resulted in less final body weight without negatively affecting carcass composition, breast meat quality, N retention, and excretion compared to the control diet.

*Hungarian University / [Link](#)*

In broilers, using **Bacillus subtilis to ferment rapeseed meals at 3%** inclusion has a positive effect on growth performance. However, it reduced leg pH and water holding capacity. Even though there was no statistically significant difference in sensory traits, the chickens fed with fermented rapeseed had the worst rate.

*Wroclaw University / [Link](#)*

In broiler breeders, **the blended inorganic/organic trace minerals (Zn, Mn, and Cu)** increased egg production and egg weight from 25-65wks compared to the inorganic minerals or reduced organic minerals treatment. No difference was observed on hatchability between the treatments.

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

In yellow feathered broiler chickens, adding 300 mg/kg of **medium-chain monoglycerides** in the diets increased overall body weight and feed intake (70 days), and reduced starter feed conversion and mortality (0-21days). It also shows benefits in the gut microbiota and improved gut health.

*Zhejiang University / [Link](#)*

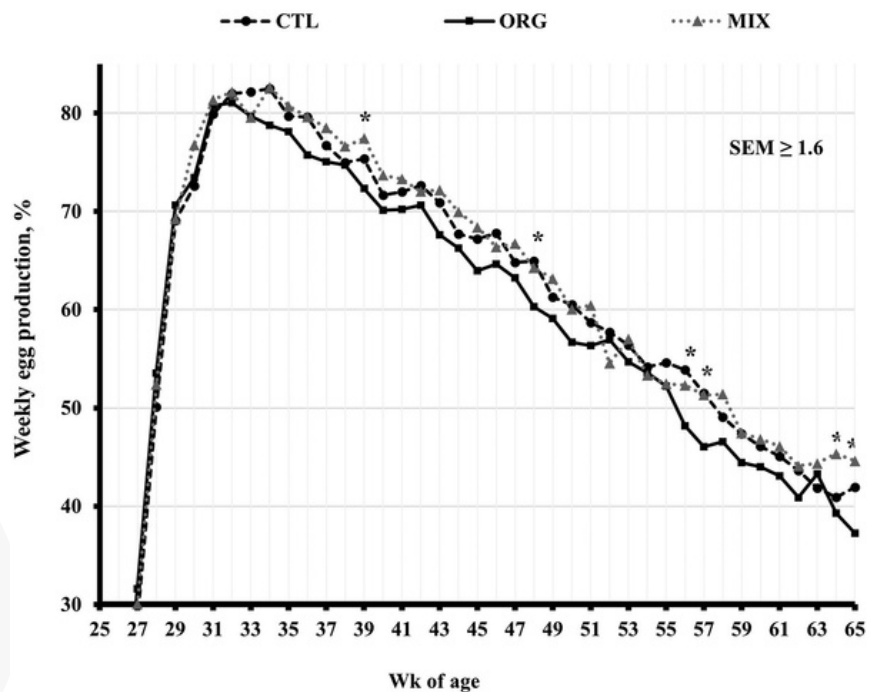


Fig. Effect of broiler breeder hen dietary trace mineral inclusion on weekly hen-day egg production (%) from wk 25 to 65.

In brown laying hens, **feed restriction of 115 g/day (22-46wks)** decreased abdominal fat and incidence of fatty liver hemorrhagic syndrome at 45 weeks, the feed restriction also increase the albumen height and Haugh unit but did not impact egg weights in comparison to ad libitum fed hens.

*University of Nottingham / [Link](#)*

In pekin ducks, **coated sodium butyrate** (CSB) improved small intestine and cecal gut morphology. CSB levels (0-1,250mg/kg) did not impact the growth performance.

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

## Review#1

### Calcium Nutrition of Broilers: Current Perspectives and Challenges

A shift towards focusing on the digestible levels of phosphorus in the diet of broilers has inspired a closer look at the levels of calcium in the diet as the relationship between phosphorus and calcium absorption is intertwined. Recent work has shown that not all calcium is made the same, with limestone variations in solubility and particle size. Another caveat of determining calcium levels is its interactions with Vitamin D and phosphorous. As studies focus on phytate phosphorus and microbial phytase providing phosphorus available to the bird, these studies neglect to look at the **digestibility of calcium**. As phosphorus moves to the forefront of research, calcium levels should follow suit.

Massey University | [Link](#)



Table 6. Factors affecting Ca digestibility in poultry.

Factor	Reference
Dietary factors:	
Basal diet composition	[46]
Dietary Ca concentration	[54,59,123,136]
Dietary P concentration	[58,79,137]
Ca:P ratio	[42,54,138,139]
Ca source/origin	[43,79,100,109,111]
Particle size of Ca source	[42,44,89,123,140]
In vitro solubility of Ca source	[79]
Dietary phytate	[23,141]
Phytase	[23,88,134,141-143]
Other enzymes or combination of enzymes	[144,145]
Steam conditioning	[146]
Antinutritive factors	[147]
Bird factors:	
Age	[47,133,148-150]
Class of chickens	[37,48,151,152]
Physiological factors:	
Ca status	[123]
Dietary adaptation length	[45,46,133]

## Review#2

### Could Insect Products Provide a Safe and Sustainable Feed Alternative for the Poultry Industry?

Insects can be a novel, sustainable, and valuable nutraceutical source for animal diets instead of plant-based protein sources. Although, there can be variability in their nutritional profile depending upon their rearing substrate, surrounding conditions, specie type, and developmental stage. This review summarizes **the use of different insects** in poultry feed along with their nutritional profile, strengths, weaknesses, safety guidelines, and future prospects.

Alexandria University | [Link](#)

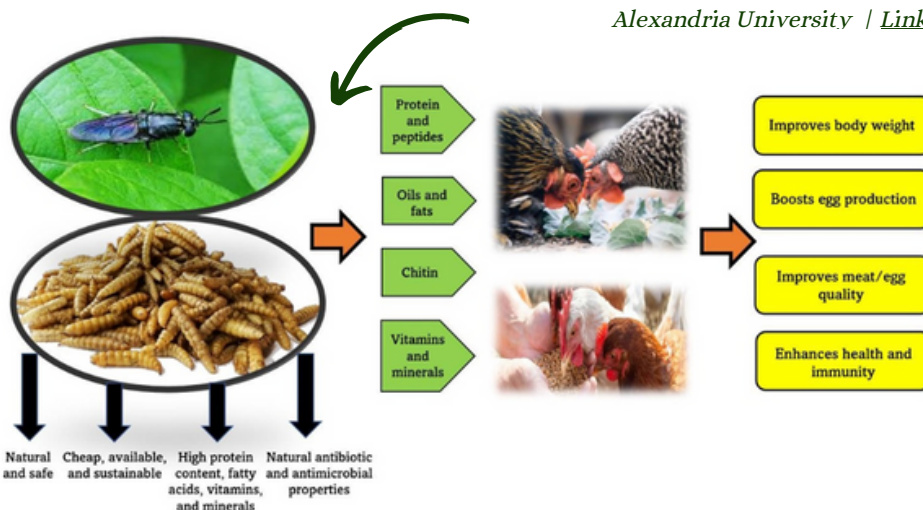


Fig. The intestinal epithelial cell is the orchestrator of gut health.

## Review #3

### A meta-analysis of the effects of dietary Spirulina on growth performance of broiler chicken

**Spirulina (*Spirulina platensis*)** has received attention as an alternative protein source and feed additive in animal diets. From the meta-analysis, fed diets containing spirulina improved weight gain and feed conversion ratio compared to those fed control diets. But there was no difference in feed intake between the groups fed Spirulina diets and control diets. Additionally, inclusion of <10% Spirulina in diets as an additive is more suitable in broiler chickens, especially in Cobb and Ross strains.

University of Peradeniya | [Link](#)

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Our mailing address is:  
Department of Poultry Science, The University of Georgia  
110 Cedar St  
Athens, GA 30602-5028