



## Friday Notes from

### *MSSTATE Poultry Science*

**Friday Notes** - to keep you informed about noteworthy news from Poultry Science at Mississippi State....and let us hear from you as well!

***Poultry Science Department News:  
Faculty, Staff, and Student Travel and Activities.***

- **Drs. Adhikari, Wamsley, and Zhai** participated in the annual meeting of Regional Research Project 1442, "Poultry Production Systems and Well-being," July 28-30, in Honolulu, HI.
- **Dr. Tabler** scored paws and obtained water from a commercial grower for research projects, July 29.
- **Dr. Tabler** met with Atrium Light and Power representatives to discuss LED bulbs, Aug 1.

### ***Cumulative List of Scientific and Extension Publications, 2019***

- ***Abstracts of Presentations at the IPSF, Atlanta, February 11-12, 2019; these can be accessed at [www.ippexpo.org/ispf](http://www.ippexpo.org/ispf):***
  - **Chrysta Beck\***, **Christopher McDaniel**, **Kelley Wamsley**, G. Pharr, **Aaron Kiess**, “In ovo injection of probiotic bacteria and its influence on the broiler immune system during a coccidia challenge”
  - **Abdulmohsen Alqhtani\***, Scott Branton, Jeff Evans, **Katie Elliott**, **David Peebles**, “The effects of in ovo administration of 6/85 Mycoplasma gallisepticum vaccine on layer chicken embryo hatchability and early post-hatch performance “
  - **Andrew Brown\***, Mark Lemons, **Christopher McDaniel**, Joseph Moritz, **Kelley Wamsley**, “Determining the average particle size (APS) consumed between two broiler strains (S) receiving diets varying in feed form (FF) and feed quality (FQ) and the subsequent impact on starter performance (0-6 and 0-18 d)”
  - **Courtney Ennis\***, Mark Jackson, Omar Gutierrez, Staci Cantley, **Kelley Wamsley**, “Effects of superdosing phytase and use of carbohydrase enzymes in low energy diets on 56 day male broiler performance and processing”
  - **Milan Sharma\***, Carlos Domenech, **Pratima Adhikari**, “Effect of feeding pronutrient (Alquernat Nebsui L) on hen day egg production, egg quality and small intestine histomorphology of laying hens. ‘
  - **Bo Zhang\***, **Wei Zhai**, “Effects of riboflavin on growth performance, processing yield, and internal organ development of Ross 708 male broilers”
  - **Saman Fatemi\***, **Katie Elliot**, Abiodun Bello, Bradley Turner, Haijun Zhang, **Edgar Peebles**, “Effects of the in ovo injection of vitamin D3 and 25-hydroxyvitamin D3 on immunity and small intestine morphology in broilers fed commercial or calcium and phosphorous-restricted diets”
  - **Rosana Hirai\***, Leonel Mejia, Cesar Coto, Justina Caldas, **Christopher McDaniel**, **Kelley Wamsley**, “Impact of feeding varying grower digestible lysine and energy levels to female Cobb MV × Cobb 500 broilers on 42-day growth performance and processing yield”
  - **Katie Elliott\***, Scott Branton, Jeffrey Evans, **Edgar Peebles**, “Early chick immunity after in ovo vaccination of F strain Mycoplasma gallisepticum and the influence of sex on the response to the vaccination”
  - **Josie Gamble\***, **Claudia Castaneda**, **Kelley Wamsley**, **Christopher McDaniel**, **Aaron Kiess**, “In ovo injected Bacillus subtilis probiotic serotypes alter broiler hatchability and intestinal microflora”
  - **Lauren Lindsey\***, **Katie Elliott**, **Seyed Fatemi**, **Peter Ishola**, Patrick Gerard, **Edgar Peebles**, “Incubational and embryonic temperature relationships in Ross 708 broiler hatching eggs”
- **Claudia Castañeda**, **Christopher McDaniel**, Hossam Abdelhamed, Attila Karsi, **Aaron S. Kiess**, 2019. Evaluating bacterial colonization of a developing broiler embryo after in ovo injection with a bioluminescent bacteria. Poultry Sci. <https://doi.org/10.3382/ps/pez053>.
- Xi Wang Yuhua Z Farnell **Aaron S Kiess E David Peebles Kelley G S Wamsley Wei Zhai**, 2019. “Effects of *Bacillus subtilis* and coccidial vaccination on cecal microbial diversity and composition of *Eimeria*-challenged male broilers,” Poultry Sci. <https://doi.org/10.3382/ps/pez096>

- E.N. Ferjak, C.A. Cavinder\*, **A.T. Sukumaran**, D.D. Burnett, C.O. Lemley, T.T.N. Dinh, 2019. "Fatty acid composition of mesenteric, cardiac, abdominal, intermuscular, and subcutaneous adipose tissues from horses of three body condition scores," *Livestock Science* 223:116-123.
- Xi Wang, **E. David Peebles**, **Aaron S. Kiess**, **Kelley G.S. Wamsley** and **Wei Zhai**, 2019. "Effects of coccidial vaccination and dietary antimicrobial alternatives on the growth performance, internal organ development, and intestinal morphology of *Eimeria*-challenged male broilers," *Poultry Sci.* 98:5:2054-2065.  
<https://doi.org/10.3382/ps/pey552>.
  - **NOTE: This manuscript is an Editor's Choice for the current issue of *Poultry Science*!**
- **Tom Tabler**, F. Dustan Clark, Jonathan Moyle, **Jessica Wells**, and Nikki Jefcoat, "Fowl cholera and infectious choryza in backyard flocks,"  
[http://extension.msstate.edu/sites/default/files/publications/publications/p3341\\_web.pdf](http://extension.msstate.edu/sites/default/files/publications/publications/p3341_web.pdf)
- **Tom Tabler**, Seun Durojaye, Filip To, **Katie Elliott**, Patrick Gerard, and **David Peebles**, "Relationship of Air Cell Size to Shell Temperature and Weight Loss in Broiler Hatching Eggs,"  
<http://extension.msstate.edu/sites/default/files/publications/publications/p3352.pdf>
- **Tom Tabler**, Yi Liang, and **Jessica Wells**, "Sprinklers Offer Flock Cooling Benefits and Water Conservation Opportunities,"  
<http://extension.msstate.edu/sites/default/files/publications/publications/p3351.pdf>
- **Tom Tabler**, "Use of thermal cameras in poultry houses," interview with Engormix,  
[https://en.engormix.com/MA-poultry-industry/videos/use-thermal-cameras-poultry-houses-t55163.htm?utm\\_source=notification&utm\\_medium=email&utm\\_campaign=2-1-0](https://en.engormix.com/MA-poultry-industry/videos/use-thermal-cameras-poultry-houses-t55163.htm?utm_source=notification&utm_medium=email&utm_campaign=2-1-0)
- Reshma Ramachandran, Midian N. dos Santos and **Christopher D. McDaniel**, 2019. In vivo and in vitro inoculations of live viruses alter parthenogenesis in Chinese painted quail. *Int. J. Poult. Sci.* 18: 284-292.  
<https://doi.org/10.3923/ijps.2019.284.292>
- **Tom Tabler**, Seun Durojaye, Filip To, **Katie Elliott**, Patrick Gerard, and **David Peebles**, "Thickness and thermal gradients across broiler hatching eggshells,"  
<http://extension.msstate.edu/sites/default/files/publications/publications/p3355.pdf>
- **Tom Tabler**, "Cooling chickens with sprinklers has multiple benefits,"  
[https://poultryhealthtoday.com/cooling-chickens-with-sprinklers-has-multiple-benefits/?utm\\_source=Poultry+Health+Today+Newsletter&utm\\_campaign=b10fef64dc-AAAP\\_antimicrobial\\_stewardship\\_PHT\\_1\\_8\\_2018\\_COPY\\_0&utm\\_medium=email&utm\\_term=0\\_5ac605299a-b10fef64dc-315441937](https://poultryhealthtoday.com/cooling-chickens-with-sprinklers-has-multiple-benefits/?utm_source=Poultry+Health+Today+Newsletter&utm_campaign=b10fef64dc-AAAP_antimicrobial_stewardship_PHT_1_8_2018_COPY_0&utm_medium=email&utm_term=0_5ac605299a-b10fef64dc-315441937)
- **Tom Tabler**, Margaret Khaita, and **Jessica Wells**, "Smallholder farmer constraints to village chicken production,"  
<http://extension.msstate.edu/sites/default/files/publications/publications/p3315.pdf>
- **Mark E Lemons**, **Christopher D McDaniel**, Joseph S Moritz, **Kelley G S**

- Wamsley**, Interactive Effects of High or Low Feed Form and Phase of Feeding on Performance of Ross x Ross 708 Male Broilers Throughout a 46 d Growout, *The Journal of Applied Poultry Research*, , pfy012, <https://doi.org/10.3382/japr/pfz012>
- **Mark E Lemons, Christopher D McDaniel, Joseph S Moritz, Kelley G S Wamsley**, Increasing Average Feed Particle Size During the Starter Period Maximizes Ross × Ross 708 Male Broiler Performance, *The Journal of Applied Poultry Research*, Volume 28, Issue 2, June 2019, Pages 420–434, <https://doi.org/10.3382/japr/pfz004>
  - **Peebles III, Edgar David** (copyrighted), Q3, 2019 (Submitted for Publication-9/3/18; Date Proof was Posted-1/21/19). In *Ovo Development of the Chicken Gut Microbiome and Impact on Later Gut Function*, Chapter 5, Pages ?? in Part 1: Understanding the gastrointestinal tract, in Book: Understanding and Improving Gut Function in Poultry. First Edition. S. C. Ricke, ed., Burleigh Dodds Science Publishing, Sawston, Cambridge, UK. ISBN-13:9781786763044.
  - Goodarzi, P., A. Akhlaghi, M. Z. Zamiri, M. R. Jafarzadeh Shirazi, A. A. Akhlaghi, M. Habibi, H. Daryabari, F. Saemi, and **E. D. Peebles**. 2019. Sperm characteristics of Chukar partridge (*Alectoris chukar*) breeders as affected by the addition of calcitriol to the semen extender. *Poult. Sci.* [dx.doi.org/10.3382/ps/pez158](https://doi.org/10.3382/ps/pez158).
  - Zhang, H., **K. E. C. Elliott**, O. A. Durojaye, **S. A. Fatemi**, M. W. Schilling and **E. D. Peebles**, 2019. Effects of *in ovo* injection of L-ascorbic acid on growth performance, carcass composition, plasma antioxidant capacity, and meat quality in broiler chickens. *Poult. Sci.* [dx.doi.org/10.3382/ps/pez173](https://doi.org/10.3382/ps/pez173).
  - **Elliott, Katie E. C.**, Scott L. Branton, Jeffrey D. Evans, and **E. David Peebles**, 2019. Occurrence of horizontal transmission in layer chickens after administration of an *in ovo* strain F *Mycoplasma gallisepticum* vaccine. *Poult. Sci.* [dx.doi.org/10.3382/ps/pez306](https://doi.org/10.3382/ps/pez306).
  - Durojaye, O. A., S. D. F. To, **K. E. C. Elliott**, P. D. Gerard, and **E. D. Peebles**, 2019. Relationship of eggshell thickness to thermal gradients across the shell at the large and equatorial regions of Ross 708 broiler hatching eggs. *Int. J. Poult. Sci.* 18(2):51-57. <https://scialert.net/archivedetails.php?issn=1682-8356&issueno=257>
  - **Peebles, E. D.**, T. S. Cummings, T. M. Barbosa, F. D. Wilson, C. J. Williams, and P. D. Gerard, 2019. Comparative effects *in ovo* versus subcutaneous administration of the Marek's disease vaccine and pre-placement holding time on the intestinal villus to crypt ratios of Ross 708 broilers during early post-hatch development. *Poult. Sci.* 98:712-716. <https://academic.oup.com/ps/article/98/2/712/5115708>
  - **Peebles, E. David**, 2019. Presenter and panelist for "Jumpstarting the Development of the Chick" live editorial webinar. Webinar was broadcast 8:30-10:00 AM on Tuesday, March 5, 2019 to approximately 200 listeners. The editorial webinar was an online Feed (FeedNavigator) production by William Reed Business Media, Le Belem-355 rue Vendemiaire, 34000 Montpellier, France. The webinar was sponsored by DuPont Industrial Biosciences. <https://www.feednavigator.com/Events/Jumpstarting-the-Development-of-the-Chick>
  - Abstracts presented at the Reciprocal Meats Conference, Fort Collins, CO, June 23-26
    - 166-REDUCTION OF SALMONELLA IN PORK TRIMMINGS  
H. C. Cobb, D. Sajeev, H. T. Thames, S. Park, S. B. White, J. M. N. Feugang, **A. T. Sukumaran**, T. T. N. Dinh,

- 180-EFFECTS OF ELECTROSTATIC SPRAY AND NATURAL ANTIOXIDANTS ON CHEMICAL QUALITY OF GRASS- FINISHED BEEF STRIPS STEAKS  
H. T. Thames, D. Sajeev, H. C. Cobb, **A. T. Sukumaran**, A. J. Holtcamp, T. T. N. Dinh  
[https://meatscience.org/docs/default-source/default-document-library/abstract-by-number.pdf?sfvrsn=ac1b15cc\\_0](https://meatscience.org/docs/default-source/default-document-library/abstract-by-number.pdf?sfvrsn=ac1b15cc_0)
- **Tom Tabler, Jonathan Moon, Jessica Wells**, “Is No Antibiotics Ever (NAE) Poultry Production Sustainable?” <http://extension.msstate.edu/publications/no-antibiotics-ever-nae-poultry-production-sustainable>
- **Tom Tabler**, “Cooling chickens with sprinklers has multiple benefits,” Poultry Health Today, Editor’s Choice, June 25. [https://poultryhealthtoday.com/cooling-chickens-with-sprinklers-has-multiple-benefits/?utm\\_source=Poultry+Health+Today+Newsletter&utm\\_campaign=9fdae46080-EMAIL\\_CAMPAIGN\\_2018\\_12\\_06\\_02\\_18\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_5ac605299a-9fdae46080-315441937](https://poultryhealthtoday.com/cooling-chickens-with-sprinklers-has-multiple-benefits/?utm_source=Poultry+Health+Today+Newsletter&utm_campaign=9fdae46080-EMAIL_CAMPAIGN_2018_12_06_02_18_COPY_01&utm_medium=email&utm_term=0_5ac605299a-9fdae46080-315441937)
- **RA Hirai**, L. Meija, C. Coto, J. Caldas, **CD McDaniel** and **KGS Wamsley**, 2019, “Evaluating the response of Cobb MV x Cobb 500 broilers to varying amino acid density regimens for a small bird program,” J. of Applied Poultry Research, <https://doi.org/10.3382/japr/pfz055>
- **Sukumaran, A. T.**, Coatney, K., Ellington, J., Holtcamp, A. J., Schilling, M., & Dinh, T. T. (2019). “Consumer Acceptability and Demand for Cooked Beef Sausage Formulated With Pre-and Post-Rigor Deboned Beef. *Meat and Muscle Biology*, 3(1), 210-218. <https://dl.sciencesocieties.org/publications/mmb/pdfs/3/1/210?search-result=1>
- **Nikhil K Nuthalapati** Jeffrey D Evans Robert L Taylor, Jr. Scott L Branton Bindu NanduriGregory T Pharr, “Transcriptomic analysis of early B-cell development in the chicken embryo,” Poultry Science, <https://doi.org/10.3382/ps/pez354>
- **Abstracts presented at the 108<sup>th</sup> Annual PSA Meeting – all abstracts may be found at: [https://www.poultryscience.org/psa19/docs/PSA19\\_Program.pdf](https://www.poultryscience.org/psa19/docs/PSA19_Program.pdf) until officially published by PSA later this summer (\*, undergraduate student; \*\*, graduate student; \*\*\*, faculty):**
  - **Lauren Lindsey\***, **Katie Elliott**, **Sayed Fatimi**, **Peter Ishola**, Patrick Gerrard, and **Edgar Peebles**, “Effect of reduced incubational temperature on broiler post-hatch body temperatures and growth,”
  - **Claudia Castañeda\*\***, Julio Miotto, **Li Zhang**, **Kelley Wamsley**, **Christopher McDaniel**, and **Aaron Kiess**, “Impact of *in ovo* injected *Lactobacillus* species on hatchability, growth performance and broiler immune status.”
  - **Jessica Wells\*\*\***, Laura Downey, **Tom Tabler**, **Kelley Wamsley** and **Chris McDaniel**, “An environmental scan of recruitment practices in poultry science departments located in the United States.”
  - **Jessica Wells\*\*\***, Laura Downey, **Tom Tabler**, **Kelley Wamsley** and **Chris McDaniel**, “Current recruitment practices and their relationship with student numbers, graduation rates, and satisfaction within poultry science.”
  - **Jessica Wells\*\*\***, Laura Downey, **Tom Tabler**, **Kelley Wamsley** and **Chris McDaniel**, “Internal and external factors influencing poultry science student college choice.”
  - **Tianmn Li\*\***, **Claudia Castañeda**, Julio Miotto, **Chris McDaniel**, **Aaron Kiess** and **Li Zhang**, “Effects of *in ovo* administration on the incidence of avian pathogenic *Escherichia coli* (APEC) in broilers and an evaluation on the virulence and antimicrobial resistance properties of APEC.”
  - **Mercedes Smith\***, **Alyssa Easterling**, **Nikhil Nuthalapati**, **Li Zhang**, **Aaron Kiess** and **Anuraj Theradiyil Sukumaran**, “Prevalence of plasmid carried virulence

genes by *Escherichia coli* isolates from litter, feces, and cloacal and tracheal swabs collected from “no antibiotics ever” commercial farms.”

- **Tomi Obe\*\***, Rama Nannapaneni, Wes Schilling, **Chris McDaniel**, and **Aaron Kiess**, “Prevalence of *Salmonella enterica* on processing equipment after sanitization procedures.”
- **Milan Sharma\*\***, **Chris McDaniel**, **Aaron Kiess**, and **Pratima Adhikari**, “Housing environment and hen strain alter egg production, egg quality, and tibia strength, as well as eggshell and cloacal microbiology in post-peak laying hens.”
- Bishnu Adhikari, Se-Ran Jun, Young Min Kwon, **Aaron Kiess**, and **Pratima Adhikari**, “Effects of housing types on egg production and cecal microbiota of two different strains of laying hens during the late production stage.”
- **Sabin Poudel\*\*** and **Wei Zhai**, “Effects of riboflavin and *Bacillus subtilis* on growth performance of Ross 708 male broilers with or without coccidial challenge.”
- **Wei Zhai\*\*\*** and **Sabin Poudel**, “Effects of riboflavin and *Bacillus subtilis* on internal organ development in Ross 708 male broilers with or without coccidial challenge.”
  
- **Andrew Brown\*\***, Mark Lemons, **Chris McDaniel**, Joseph Mortiz, and **Kelley Wamsley**, “Determining the relationship among average particle size consumed and gastrointestinal characteristics of two broiler strains in the starter phase.”
- **Saman Fatemi**, **Katie Elliott**, **Abdulmohsen Alqhtani**, Abiodun Bello, and **Edgar Peebles\*\*\***, “Effects of the *in ovo* injection of vitamin D<sub>3</sub> on the small intestine morphology and immunity of broilers challenged with coccidiosis.”
- **Saman Fatemi**, **Katie Elliott**, **Abdulmohsen Alqhtani**, Abiodun Bello, and **Edgar Peebles\*\*\***, “Effects of the *in ovo* injection of vitamin D<sub>3</sub> and 25-hydroxyvitamin D<sub>3</sub> on the performance and meat yield of broilers challenged with coccidiosis.”