



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. Tabler and Farnell**, accompanied by **Dima White** and **Marcelo Moreira** traveled to Cal-Maine in Jackson to heat treat egg flats and determine bacterial load reduction, Aug 4.
- **Dr. Tabler** met with Plasson and Peco representatives to assess feed pan performance at MSU commercial houses. Also met with Proxy-Clean representative Mary Foy to discuss new cool cell cleaner product to remove mineral and scale build up, Aug 5.
- **Mrs. Wells, Dr. Peebles and Dr. Tabler** attended the Sanderson Summer Intern presentation program at the corporate office at Laurel, Aug 7.
- **Drs. Peebles, McDaniel, Farnell and Tabler** attended the MPA Breeder/Hatchery Seminars at the Pearl CVM Lab and the Civic Center in Collins, Aug 11 & 12.
 - **Dr. McDaniel** spoke on "Early Embryo Mortality"
 - **Dr. Peebles** Dave spoke on "Incubation Physiology Facility: Overview and Future Programming."
- **Dr. Farnell and Tabler** attended the avian influenza update and planning meeting for commercial poultry industry representatives at the state lab at Pearl. Also in attendance were representatives from MS Department of Ag and Commerce, governor's office, DEQ, USDA, Farm Bureau, etc.; Dr. Jim Watson chaired the meeting. Aug 13
- **Drs. Farnell and Tabler**, accompanied by **Dima White** and **Shailesh Gurung** (MS students with **Dr. Farnell**) traveled to Cal-Maine in Jackson to heat treat egg flats to determine bacterial load reduction, Aug 17
- **Dr. Tabler**, accompanied by **Dima White** and **Shailesh Gurung** visited a broiler breeder operation to assess LED light levels, Aug 19
- **Drs. McDaniel, Kiess, Tabler, Beck** and **Mrs. Wells** participated in the Freshman Convocation at Humphrey Coliseum, Aug. 18
- **Dr. Farnell** participated in the Poultry Science Association's site visit for the 2016 annual meeting, in New Orleans, Aug 19-21. **Dr. Farnell** is the 2016 General Program Chair for this meeting.
- **Dr. Beck** served as search committee chair for the department head of Food Science, Nutrition, and Health Promotion, Aug 5-7 and Aug 12-14.
- **Drs. Wamsley and Beck** served on the MPA Board's Scholarship Committee, Aug 21.

Congratulations to...

- **Ben Sellers**, who successfully defended his MS thesis, “Feed quality effects on modern heavy broiler performance,” under the direction of **Dr. Wamsley**, Aug. 20. Dr. Joe Moritz from West Virginia University attended the defense as a member of the committee, along with **Dr. McDaniel**.

Welcome to....

- All returning and new undergraduate students, who were welcomed at a Meet and Greet in Hill Poultry Science, Aug 17. Undergraduate enrollment is at a new high of 56 students.
- All returning and new graduate students who are listed below, bringing the number to an all-time high of 18:
 - **Claudia Castaneda** (MS with **Dr. Kiess**)
 - **Courtney Ennis** (MS) and **Mark Lemons** (PhD) with **Dr. Wamsley**
 - **Midian Nascimento dos Santos** (MS) and **Reshma Ramachandran** (PhD) with **Dr. McDaniel**
 - **Mohit Bansal** (MS) and **Tomilola Obe** (MS) with **Dr. Sharma**
 - **Seun Durojaye** (MS with **Dr. Peebles**)
 - **Shailesh Gurung** (MS with **Dr. Farnell**)

Farewell to...

- **Cam Cardenas** (MS grad student with **Dr. Wamsley**), who has left to pursue a PhD degree at Virginia Tech University.
- **Ben Sellers** (MS grad student with **Dr. Wamsley**), who is leaving for employment with Hayes & Stolz, Industrial Manufacturing Company, in Fort Worth, TX.
- **Marcelo Moreira** (undergrad intern with **Dr. Farnell**), who has returned to Brazil.

Recent Publications:

- Liu, X., JA Byrd, **M. Farnell** and CA Ruiz-Feria, 2014, Arginine and vitamin E improve the immune response after a Salmonella challenge in broiler chicks. 2014 Poultry Science 93:882–890.
<http://dx.doi.org/10.3382/ps.2013-03723>.
- C. A. Hinojosa,* D. J. Caldwell,* J. A. Byrd,† M. A. Ross,* K. D. Stringfellow,* E. J. Fowlkes,* J. T. Lee,* P. A. Stayer,‡ **Y. Z. Farnell**,§ and **M. B. Farnell**, 2015. Use of a foaming disinfectant and cleaner to reduce aerobic bacteria on poultry transport coops. 2015 J. Appl. Poult. Res. 00:1–7.
<http://dx.doi.org/10.3382/japr/pfv036>.
- **Tom Tabler** and Brigid Elchos, “Avian Influenza: Frequently Asked Questions”; <http://msucares.com/pubs/infosheets/is2013.pdf>.
- **Tom Tabler** and **Brigid Elchos**, “Highly Pathogenic Avian Influenza Biosecurity Checklist”; <http://msucares.com/pubs/infosheets/is2014.pdf>.
- **Tom Tabler** and **Brigid Elchos**, “Biosecurity Measures to Combat Avian Influenza Threat”; <http://msucares.com/pubs/infosheets/is2015.pdf>.

Running Cumulative List of Scientific and Extension Publications, 2015**Refereed manuscripts inadvertently omitted in 2014:**

- **Bello, A., W. Zhai, P. D. Gerard, and E. D. Peebles.** 2014. Effects of the commercial in ovo injection of 25-hydroxycholecalciferol on broiler posthatch performance and carcass characteristics. *Poultry Science* 93: 155-162. <http://dx.doi.org/10.3382/ps.2013-03389>
- **Bello, A., M.R. Bricka, P.D. Gerard, and E.D. Peebles.** Effects of commercial in ovo injection of 25-hydroxycholecalciferol on broiler bone development and mineralization on d 0 and 21 post-hatch. *Poultry Science*, Vol. 93:1055-1058. <http://dx.doi.org/10.3382/ps.2013-03608>
- **Peebles, E. D., R. Pulikanti, W. Zhai, and P. D. Gerard.** 2014. Relationships of incubational hatching egg characteristics to posthatch body weight and processing yield in Ross × Ross 708 broilers. *Journal of Applied Poultry Research*. 23:34-40. <http://dx.doi.org/10.3382/japr.2013-00784>
- **Zhai, W., E. D. Peebles, L. Mejia, C. D. Zumwalt, and A. Corzo.** 2014. Effects of dietary amino acid density and metabolizable energy level on the growth and meat yield of summer-reared broilers. *Journal of Applied Poultry Research*. 23 :501–515 <http://dx.doi.org/10.3382/japr.2014-00961>
- **Wang*, X., E. D. Peebles, and W. Zhai.** 2014. Effects of protein source and nutrient density in the diets of male broilers from 8 to 21 days of age on their subsequent growth, blood constituents, and carcass compositions. *Poultry Science*. 93:1463-1474. <http://dx.doi.org/10.3382/ps.2013-03838>.
- **Bello, A., P. Y. Hester, P. D. Gerard, W. Zhai, and E. D. Peebles.** 2014. Effects of commercial in ovo injection of 25-hydroxycholecalciferol on bone development and mineralization in male and female broilers. *Poultry Science* 93:2734–2739. <http://dx.doi.org/10.3382/ps.2014-03981>
- **Nair, D.V., C.S. Sharma, R. Nannapaneni, B.S. Mahmoud, and A.S. Kiess.** Reduction of Salmonella on turkey breast cutlets by plant derived compounds. *Foodborne Pathogens and Disease* 11:981-987. http://online.liebertpub.com/doi/abs/10.1089/fpd.2014.1803?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed

2015 Papers and Abstracts

2015 International Poultry Scientific Forum and International Production and Processing Expo Abstracts: (www.southernpoultrysciencesociety.org)

- Comparative effects of in ovo versus subcutaneous vaccination and pre-placement holding time on post-hatch broiler performance **E. David Peebles**, Taylor Barbosa, Timothy Cummings, John Dickson, **Sharon Womack**
- Use of histomorphometric area measurements for determination of intestinal villus/crypt ratios in broiler chickens: comparisons to routine linear methods and documentation of age-associated intestinal changes Floyd Wilson, Timothy Cummings, Taylor Barbosa, Chris Williams, John Dickson, Amanda Lawrence, **David Peebles**,
- Effects of the in ovo injection of organic zinc, manganese, and copper on the hatchability and bone parameters of broiler hatchlings Tiago Oliveira, Elizabeth Kim, Anna Caixeta, **E. David Peebles**
- Parental sex effect of parthenogenesis on hatchability of Chinese Painted quail **Holly Parker, Aaron Kiess, Chris McDaniel**
- Nutrient analysis of Mississippi broiler litter **Tom Tabler**, Ashli Brown, Gale Hagood, **Morgan Farnell, Chris McDaniel**, Jon Kilgore
- Effect of pullet limestone particle size on performance and bone health of pullets and laying hens raised in deep litter systems Pamela Eusebio-Balcazar, Sheila Purdum, Kathryn Hanford, **Mary Beck**
- Effects of in ovo injection of Inovocox EM1 vaccine and turn-out times on broiler performance **Adebayo Sokale, E. David Peebles**, Christopher Williams.

- Both *Bifidobacterium animalis* and its metabolites impact broiler breeder sperm motility **Melissa Triplett, Christopher McDaniel, Aaron Kiess.**
- Effect of sub-lethal oxidative stress of chlorine on biofilm forming ability of various *Salmonella* strains **Janak Dhakal, Chander Sharma**
- Liquid application method (LAM), feed form (FF) and feed pan location effects on D28-56 Ross x Ross 708 male broiler performance and processing characteristics **Robert B Sellers, John Boney, Chris McDaniel, Joseph S. Moritz, Kelley G. S. Wamsley**
 - ***Ben Sellers won a graduate student certificate of excellence award for this presentation and received a cash award of \$500.***
- Effects of varying coccidiosis control and inclusions of algal beta-1,3-glucan (ABG) on D0-59 Ross x Ross 708 male broiler performance and processing **Cameron Cardenas, Wei Zhai, Robert Levine, Kelley Wamsley**
- Effects of commercially available antibiotic alternatives on 0 to 41 d male broiler chicken intestinal morphology and microflora **Xi Wang, Yuhua Farnell, Aaron Kiess, Kelley Wamsley, Wei Zhai**
- Relationship among feed form, behavior and welfare, and growth performance using male broilers **Xianjiang Wen, A.F. Liu, M.M. Beck, K.G.S. Wamsley, B. Sellers, X. Wang, W. Zhai**
- Strain and feed form (FF) effects on D28-49 male broiler performance and D43 and 50 processing characteristics **Robert B. Sellers, Paul B. Tillman, Joseph S. Moritz, Kelley G. S. Wamsley**
- Parental sex effect of parthenogenesis on egg weight in mated Chinese Painted quail. **Courtney Wade, Holly Parker, Aaron Kiess, Chris McDaniel**
- Impact of oral *Lactobacillus* gavage on seminal and cloacal *Lactobacillus* concentrations in roosters **Juliana Hirai, Melissa Triplett, Christopher McDaniel, Aaron Kiess**
- Reduction of *Salmonella* on chicken skin by the sequential application of chemical treatments and *Salmonella* lytic bacteriophage preparation **Anuraj Theradiyil Sukumaran*GS, Chander Shekhar Sharma**
- Relationships of eggshell, air cell, and cloacal temperatures of embryonated broiler hatching eggs during incubation. **Opeyemi Olojede, Katie Collins, Sharon Womack, Patrick Gerard, David Peebles**
- Effect of in ovo injection of F-strain *Mycoplasma gallisepticum* on the survivability of commercial layer embryos and chicks. **Katie Collins, Scott Branton, Jeff Evans, Sharon Womack, E. David Peebles**
- Commercially available mastic gum derived feed additive effects on zone of inhibition testing and phosphorus sparing using D3-21 male chick performance/tibia ash. **Jared Chandler, Aaron Kiess, Kelley Wamsley**
 - ***Jared Chandler won a Don R. Sloan Undergraduate Research Award for this presentation and received a cash award of \$500.***
- Effects of commercially available *Bacillus subtilis* or *B. licheniformis*-based probiotics used alone or in combination with an antibiotic on 0-64 d broiler performance and processing. **Priscila Zorzetto, Wei Zhai, David Harrington, Aaron Kiess, Kelley Wamsley.**
- The January issue (Vol. 10, Number 4) of ***Landmarks Magazine***, published by the Division of Agriculture, Forestry and Vet Medicine, contains two articles about the Poultry Science Department at <http://www.dafvm.msstate.edu/landmarks/15/jan2015.pdf> :
 - P. 14, “Poultry Teaching, Research, Extension, and Diagnostics The MSU Department of Poultry Science supports Mississippi’s top agricultural commodity.”
 - P. 18, “Parchman Poultry MSU Extension poultry specialists are addressing a growing fly and mosquito problem at the Mississippi State Penitentiary.”
- **Tom Tabler, Ashli Brown, Gale Hagood, Morgan Farnell, Chris McDaniel, and Jon Kilgore**, “Nutrient Content in Mississippi Broiler Litter” (study funded by the Mississippi Farm Bureau Federation); <http://msucare.com/pubs/publications/p2878.pdf>.

- **Wang*, X., E. D. Peebles, T. W. Morgan, R. L. Harkess, and W. Zhai.** 2015. Protein source and nutrient density in the diets of male broilers from 8 to 21 d of age: Effects on small intestine morphology. *Poultry Science* 94:61–67. <http://dx.doi.org/10.3382/ps/peu019>.
- **Tom Tabler, Kelly Loftin, Morgan Farnell, Jessica Wells, and Haitham Yakout,** “Bed Bugs: Difficult Pests to Control in Poultry Breeder Flocks,” <http://msucares.com/pubs/publications/p2881.pdf>
- J. Pieniazek¹, R. Stipanovic², L. Puckhaber², T. Wedegaertner³, **M. Farnell⁴**, J. Byrd² and J. Lee¹, 2015, “Pressed, dehulled cottonseed meal: Effect on growth performance in broiler diets and retention of gossypol in tissues,” *European Poult. Sci.*, 79:1-9; <http://dx.DOI:10.1399/eps.2015.81>
- **Dr. Tabler** has revised the Extension publication, “Poultry Disease Diagnosis,” that can be found at <http://msucares.com/pubs/publications/p1276.pdf>
- **Tom Tabler, Morgan Farnell and Jessica Wells,** “LED Bulbs: Much to Offer the Poultry Industry,” <http://msucares.com/pubs/publications/p2894.pdf>
- **Tom Tabler, F. Dustan Clark, Morgan Farnell and Jessica Wells,** “Avian Influenza Threat Requires Heightened Biosecurity Measures,” <http://msucares.com/pubs/publications/p2898.pdf>
- **Tom Tabler, F. Dustan Clark, Jessica Wells and Morgan Farnell,** “Avian Influenza: Things You Should Know,” <http://msucares.com/pubs/infosheets/is2012.pdf>
2015 Poultry Science Association Abstracts: (www.poultryscience.org):
- **Opeyemi C. Olojede***, Filip S. D. To, and **E. David Peebles,** Monitoring the air cell temperatures of broiler hatching eggs using transponders and probe networks.
 - **Yemi Olojede received Award of Excellence in Student Competition for this oral presentation**
- **Robert B. Sellers*, Thomas Tabler, Christopher McDaniel, and Kelley G. S. Wamsley,** Impact of feed system augering on feed quality using an entire commercial broiler house.
- **Alisha Moore*, Janak Dhakal, Anuraj Sukumaran, Amanda Ates, and Chander Sharma,** Efficacy of commercial antimicrobials in reduction of Salmonella in ground chicken frames.
- **Katie E. Collins***, Scott L. Branton, Jeff D. Evans, **Sharon K. Womack, and E. David Peebles,** Immune response of layer chickens vaccinated in ovo for F-strain Mycoplasma gallisepticum.
- **T. F. B. Oliveira***, A. G. Bertechini, E. J. Kim, R. M. Bricka, **O.C. Olojede, and E. D. Peebles,** Effects of in ovo injection of organic minerals and posthatch holding time on broiler performance and bone mineral characteristics.
- **T. F. B. Oliveira***, A. G. Bertechini, E. J. Kim, P. Y. Hester, **O. C. Olojede, and E. D. Peebles,** Effects of in ovo injection of organic minerals and posthatch holding time on the performance and physical bone characteristics of broilers.
- **Rosana A. Hirai***, Omar Gutierrez, and **Kelley G. S. Wamsley,** Effects of 25-OH D3 levels on 0-53 d broiler performance, processing, tibia ash, and serum Ca and 25-OH D3 status.
- **Chander Shekhar Sharma***, Kanika Bhargava, and **Amanda Ates,** Antimicrobial activity of oregano oil nanoemulsion against Salmonella enterica and Listeria monocytogenes.
- **Robert L. Alphin*, Morgan Farnell, Daniel P. Hougentogler, Jaclyn A. Weiher, Kacey O'Donnell, and Eric R. Benson,** The depopulation of caged laying hens using a compressed air foam system was evaluated with and without carbon dioxide gas.
- **A. F. Liu, M. M. Beck, K. G. S. Wamsley, B. Sellers, X. Wang, X. Wen* and W. Zhai,** Strain and feed form effects on male broiler behavior, welfare, and growth performance from day 28 to 50.
- **Holly M. Parker* and Chris D. McDaniel,** Parental sex effect of parthenogenesis on progeny of Chinese Painted quail.
- **Marcelo Moreira***, Gregory S. Archer and **Morgan B. Farnell,** The effect of housing white layers in conventional cages versus enriched colony cages on stress and fear.

- **E. David Peebles***, Taylor M. Barbosa, Timothy S. Cummings, John Dickson, and **Sharon K. Womack**, Comparative effects of in ovo versus subcutaneous vaccination and preplacement holding time on broiler processing yield.
- **Opeyemi C. Olojede***, Filip S. D. To, **Christopher D. McDaniel**, and **E. David Peebles**, Effect of eggshell color in determining broiler embryo temperature by infrared thermometry and subsequent effects of different estimates of embryo temperature on eggshell conductance values.
- **Dana Dittoe***, **Christopher McDaniel**, and **Aaron Kiess**, Windrowing poultry litter after a broiler house is sprinkled with water.
 - **Dana Dittoe received Award of Excellence in Student Competition for this poster presentation**
- **Katie E. Collins***, Scott L. Branton, Jeff D. Evans, **Sharon K. Womack**, and **E. David Peebles**, Evidence of horizontal transmission of *Mycoplasma gallisepticum* from in ovo-vaccinated layer chickens.
- **Ben A. Bishop***, **Janak Dhakal**, **Aaron Kiess**, and **Chander S. Sharma**, Detection of antimicrobial resistance genes in multidrug resistant *Salmonella enterica* isolated from retail ground turkey.
- **Melissa D. Triplett***, **Christopher D. McDaniel**, and **Aaron S. Kiess**, Killed vs. living cultures of *Bifidobacterium* and *Lactobacillus* on broiler breeder semen.

USDA-ARS

- Olanrewaju, H. A., J. L. Purswell, W. R. Maslin, S. D. Collier, and S. L. Branton. 2015. Effects of color temperatures (kelvin) of LED bulbs on growth performance, carcass characteristics, and ocular development indices of broilers grown to heavy weights. *Poultry Science* 94:338-344. <http://dx.doi.org/10.3382/ps/peu082>
- 2015 *IPSF Abstracts*: (www.southernpoultrysciencesociety.org)
 - Effects of light sources and intensity on growth performance and carcass characteristics of heavy broilers at 56 days of age. H. A. Olanrewaju, J. L. Purswell, S. D. Collier, and S. L. Branton.
 - E.J. Kim, J.L. Purswell, and S.L. Branton. 2015. Optimal inclusion rates of low-fat distiller's dried grains with solubles (LF-DDGS) in male broilers aged 28 to 42 d of age
- H.A. Olanrewaju, J.L. Purswell, S.D. Collier and S.L. Branton, 2015. Effects of light sources and intensity on blood physiological variables of broilers grown to heavy weights. Abstract published in 2015 Federation of American Societies for Experimental Biology. [www.fasbj.org/29\(4\):787.1.2015](http://www.fasbj.org/29(4):787.1.2015).
- Olanrewaju, H. A., W. W. Miller, W. R. Maslin, S. D. Collier, J. L. Purswell, and S. L. Branton. 2015. Influence of photoperiod, light intensity and their interaction on health indices of modern broilers grown to heavy weights. *Inter. J. Poult. Sci.* 14: 183-190. <http://www.pjbs.org/ijps/current.htm>
- 2015 *Annual Poultry Science Association Meeting Activities and Abstracts*:
 - Dr. Kim moderated Metabolism & Nutrition: Nutrition II.
 - Jeffrey D. Evans*, Scott L. Branton, Spencer A. Leigh, and Stephanie D. Collier, Determination of maternally derived antibodies in progeny of parents vaccinated with a
- Olanrewaju, H. A., J. L. Purswell, S. D. Collier, and S. L. Branton. 2015. Effects of color temperatures (kelvin) of LED bulbs on blood physiological variables of broilers grown to heavy weights. *Poultry Science* 94:1721-1728. <http://dx.doi.org/10.3382/ps/pev139>