



## *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:*

- **Dr. Tabler**
- **Mrs. Wells** took the portable broiler house to Tupelo and participated in Career Pathways, an MSU event to acquaint school students with Ag and other science careers, Oct. 5-7; approximately 3000 8<sup>th</sup> graders from North Mississippi attended.

### *Graduate Seminar:*

- Oct. 1:
  - **Mark Lemons:** An overview of statistical assumptions and Instructions to Authors in *Poultry Science*.
  - **Dr. Beck:** The human factor in research
- Oct 8:
  - **Xi Wang:** "Appropriate statistical methods to compare dose responses of methionine sources," (DD Kratzer, RC Littell; *Poultry Sci.* 2006, 85:947-954) and "A cautionary note on appropriate statistical methods to compare dose responses of methionine sources," (H.-P. Piepho; *Poultry Sci.* 85:1511-1512.)
  - **Rosana Hirai:** "Determining the methionine activity of mintrex organic trace minerals in broiler chicks by using radiolabel tracing or growth assay," (GF Yi, CA Atwell, JA Hume, JJ Dibner, CD Knight, JD Richards; *Poultry Sci.* 2007; 86:877-887) and "Letter: A misleading approach to determine the methionine activity of organic trace minerals," (D Hoehler; *Poultry Sci.* 2007; 86:1611-1612.)

### *Recent Publication:*

- **Xi Wang, E. David Peebles, Mark Bricka and Wei Zhai, 2015.** Protein source and nutrient density in the diets of male broilers from 8 to 21 days of age: Effects on tibia dimension, breaking strength, and mineral density. *J. Poult. Sci.* 52:197-205. <http://www.jstage.jst.go.jp/browse/jpsa>. Doi: 10.2141/jpsa.0140152.

- **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](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)
  - **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>.

## 2015 Papers and Abstracts

*2015 International Poultry Scientific Forum and International Production and Processing Expo Abstracts: ([www.southernpoultrysciencesociety.org](http://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://msucares.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. Pieniasek<sup>1</sup>, R. Stipanovic<sup>2</sup>, L. Puckhaber<sup>2</sup>, T. Wedegaertner<sup>3</sup>, **M. Farnell**<sup>4</sup>, J. Byrd<sup>2</sup> and J. Lee<sup>1</sup>, 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](http://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.
- 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>.
- **Tom Tabler**, **Morgan Farnell**, **Jessica Wells** and **William Young**, “Composting Poultry Mortality,” MPA Newsletter, Quarter 2, p. 9, [http://www.mspoultry.org/media/newsletters/MPANewsletter2015\\_02.pdf](http://www.mspoultry.org/media/newsletters/MPANewsletter2015_02.pdf)
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#### 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](http://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>