

**Friday, October 24th, 2014**

**Call to Order:**

The meeting was called to order at 8:30 am at the USDA ARS Poultry Research Unit in Starkville, MS by Joseph Purswell.

**Members present:** 17 present.

The following members of the committee were present: Joseph Purswell (USDA PRU), Jeremiah Davis (MSU ABE), Hongwei Xin (ISU), Ken Anderson (NC), Paul Patterson (PA), Anup Kollanoor Johnny (MN), Mike Hulet (PA), Yi Liang (AR), Darrin Karcher (MI), Michael Toscano (Bern), Kelley Wamsley (MS), Wei Zhai (MS), Ken Koelkebeck (IL), Mike Persia (VA), Maya Makagon (IN), Hengwei Cheng (IN), Karen Christenson (AR),

Guests: John Linhoss (MS), Mary Beck (MS). Scott Branton (MS).

**Opening Remarks:** Scott Branton, Research Leader welcomed the group to the USDA ARS PRU facilities. He spoke about the USDA unit and its past history. The unit focuses on nutrition, housing, and diseases in layers. MS is home base to the #1 egg layer company Cal Maine Foods and #3 broiler company Sanderson Foods. He spoke of the size of the broiler industry in the Southeast and mycoplasma issues. Recently change into environmental housing thrust.

Dr. Beck spoke about the Poultry Science Department at MSU. Discussion of the poultry farm and upgrades of facilities both small and commercial. Processing plant upgrades with chiller. Cal-Maine enriched cages. Renovated a house into a student broiler barn. Nutritional facilities upgrade for amino acid digestibility studies. 5000 egg incubators were donated for Pebbles by Chickmaster. Feedmill funding development. Work looking at litter and dust sampling around MS as well as dust sampling within the house. Work looking at inline composter for mortality management by Tabler. Storm outreach and assistance. Parchman Prison egg production facilities improvement.

**Committee Business:**

**A. General Business and Membership Reports**

Minutes were approved. Ken Moved and Hongwei seconded.

Officer election for Junior Executive

Have the rotating meeting plus a six month review at Atlanta. Historically the meeting location has been about seeing research facilities. The group may need to focus more on integrating industry partners. Industry partners including (NCC, UEP, National Turkey, etc). Plan the meeting in Atlanta to engage those groups.

We have an hour in Atlanta. 2pm-3pm on Wednesday January 28<sup>th</sup> in room D204. Invite industry reps.

Discussion on having the annual meeting in late August rather than October. The group chose to meet on Aug 17th.

Meeting locations were discussed. Both Raleigh and Bern, Switzerland were discussed in detail. Group decided to target Bern for 2016 and the meeting will be held in Raleigh, NC.

Travel Monday meeting Tues and Wednesday. Aug 17,18,19.

Station reports due November 9th.

### Station Reports

AR: Yi Liang: Working on study completing an energy balance of broiler processing plant. Energy efficiency information is limited. Fuel and energy consumption was quantified. Energy use was less per bird at the plant compared to on farm consumption. Water usage was about six gallons per bird. Plant boilers operated at 42% of full load each week. Most fuel was used during normal production (mostly by boilers) with less used for sanitation and other. Energy use today was comparable to a study in 1979. The energy has remained the same because more electricity is being used today that would have been human labor in 1979. Sanitation requirements are much higher today than in 1979 requiring more energy to operate. A second study on heat transfer of dry vs wet chicken feather in ventilated space was conducted. Chickens were simulated in a test chamber to measure heat transfer across the feathers. This project is on-going.

Bern: Mike Toscano: Mike gave an overview of the Bern facilities. 1 rearing barn, 2 aviaries, 2 broiler barns, and 2 multipurpose barns. Work is focusing on aviary design and operation. The group is interested in feeding density and other topics.

Research focus on the keel bone and damage and how this affects on egg production, mobility, and collisions within the house. Keel bone damage with genetic lines bred for bone strength.

They think that birds with keel bone damage use the calcium for bone and not for egg shell. Birds with major damage where producing fewer eggs. They are monitoring each tier of the aviary with leg emitters to tell where the birds are located. Birds with bone damage travel less than healthy birds.

Keel bone damage by genetic lines. They used birds bred for bone strength (high and low). They found that breeding for bone strength may reduce keel bone damage.

Nestbox design: Birds prefer to nest near the edges of larger nest boxes

Influence of omega-3 diets on keel damage susceptibility.

IA: Hongwei Xin: Completion of CSES: comparison of three housing systems. Large project with multiple collaborators. Conventional cages, aviary and enriched.

Air emissions in CC and EC were similar and better than AV house. Poor air quality was due to presence of litter. Ammonia was least in EC due to drier manure. Dust was highest in AV 8-10 times higher than others.

Field evaluation of fluorescent vs LED lighting in AV houses. LED decreased light intensity by 27% in first 7 months however did not change much 5 months thereafter. FL and LED were below 62 C temperature and less likely to fail due to temperature. Egg weight, feed use and mortality were similar

between bulbs but FL hens had higher eggs/hen housed and better FC than LED hens during 20-70 weeks of age. Feather coverage was less for LED. Hens in LED houses showed a larger avoidance than FL. Dust not different between bulbs.

Egg Industry Center Forum Des Moines IA April 7th and 8th.

IL: Ken Koelkebeck: For the purpose of examining varying levels of constant atmospheric CO<sub>2</sub> levels on broiler performance, the levels of 2,000, 4,000 and 8,000 ppm were used. In this experiment, ninety Ross 708 commercial broilers at 1 day of age were housed in each of the 3 chambers. From Day 1 to 28, all birds were fed ad libitum a regular broiler starter and grower diet.

During the 4-wk trial mortality was very low and birds that died was not a result of the CO<sub>2</sub> levels. This study revealed that constant exposure of 8000 ppm of CO<sub>2</sub> did not have a damaging effect on broiler growth, feed intake or feed conversion.

IN: Cheng: Thermal perches as cooling devices for reduced heat stress. Hens tend to perch for resting. It has been shown that 25% of body heat can be lost through feet. non-cooled perch, cooled perch, and control. Thought this is an ongoing study, birds on the cooled perch had higher feed intake. Egg weight heavier for cooled perches.

IN: Makagon: Discussed three ongoing projects. Perch design, types of materials to improve grip. Soft perches are better than metal. mite control with essential oils using an agseed grant. keel abnormalities in laying hens housed in enriched colony cages.

PA: Hulet/Patterson: Handling and Hauling poultry training. Trained most of PA and other states. USPEA picked up training to wider audience.

Penulous crop or drop crop. Issue with contamination of carcass. Many parameters may effect this... studied water avail, metabolizable energy, and brooding temp. Second trial included incubation temp, feed form, and lighting program. Brooding temperature showed the largest changes between low and high. In the second trial, no differences were shown for the pendulous crop. Water consumption during early brooding period was most important with brooding tempertarue effect.

Vegetative buffer strips. Shade belts to draw cooler air into the building. Use of conservation practices to clean gray water of the farm.

Looking at alternative ingredients such as naked oats, algae, sunflower meal. US EPA Chesapeake Bay Poultry Litter Subcommittee. SARE grant to train 25 people to do outreach for the poultry industry.

VA: Mike Persia: Measuring energy response. Created a study with varying feed energy by 90 kcal/kg. Feed intake was not significant but a 1-2 gram difference. May be important though not significant. Looked at other areas for significance. Ab fat pad weight was different (23%). changes in dietary energy utilization altered body composition mostly at the cost of fat storage.

MS: Zhai: Evaluating various lysine and Methionine supplements on breast development and quality. Lys and Met increased growth rate and meat yield without having any adverse effects on the quality. Supplementation of both may increase some meat quality parameters.

Evaluation of commercial antibiotics alternatives for growth and gut microflora. Antibiotics increased breast growth at 42 day. Pre and probiotics increased broiler growth and breast meat production as similar to antibiotic diets. Prebiotics may increase lactobacillus growth at early age.

Wamsley: Feed quality research. Adequately describe pelleting techniques and quality of feed produced using current genotypes and practical diets. Nutrient segregation: Feeding 80% pellets to two strains increased bird performance from d28-42. Augering a 75% pellet diet or diet with post pellet LAM results in increased overall % pellets. If mill can only achieve 55% pellets, LAM be less important.

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1. Lighting Symposium (Darre)
  2. Tracking Behavior Chapter (Toscano, Sigford, Xin, Davis, Makagon, Cheng).
  3. Monitoring and tracking with software (Anderson, Purswell, Davis)
  4. USPEA grant for tracking system for range use and cages (Toscano, )
  5. Vegetative Buffer (Patterson, Davis)
  6. Strain and skeletal
  7. Standardization of Litter Study Sampling Methods (Patterson, Hulet, Davis)
  8. Feeder Density Studies (Toscano, Xin, )

### **Invite to committee 1027**

John Moyle

Texas A&M - Craig Coufal, John Archer

LSU - LaVerne

Christine Alvarado

Mortz

Auburn - Bill Dozier, Manpreet

Bridged McCrea

Rachel Dennis - Maryland

Brad Kim

Wes Shulte

Brian Docker

Brian Kieffer