NE -1042
Optimization of Poultry Welfare and Production Systems for the 21st Century
Meeting Minutes
October 21-22, 2011
University of Illinois

Friday, October 21, 2011

The meeting was called to order by Ken Koelkebeck, who is standing in for Sheila Scheildeler, 8:40 am.

Members present: Ken Anderson (NC), Mike Darre (CT), Cameron Faustman (CT) , Angela Green (IL), Sally Noll (MN), Hengwei Cheng (IN), Darrin Karcher(MI), Ken Koelkebeck (IL:), Jody Purswell(MS) and Tim Shepherd(IA). Joining us by phone were Richard Reynnells (USDA), Hank Engster, and Kevin Roberson.

The members introduced themselves and stated their affiliation

Ken stated that he would run the meeting for Scheila Scheideler, and said that the others who could not make it contacted him.

Committee Business:

A. Time and location of the 2012 meeting

The executive committee leadership will be as follows for 2012: Angela Green will be Chair, Darrin Karcher will be Senior Exec, Mike Darre will continue as Sec, and the Jr. Exec to be voted on during the meeting. Sally Knoll and Ken Anderson were appointed as the nominating committee.

Ken Anderson volunteered to host the 2012 meeting and the group voted in acceptance of the location to be in North Carolina at Salisbury, which is about 45 min from Charlotte. The dates will be October 12-13, 2012, with people arriving on the 11th. It was suggested that people could fly into Charlotte or Greensboro (Piedmont). Ken already made arrangements for us to visit the Piedmont Research Station so make sure you are not around chickens or other birds at least 72 hrs prior to the meeting.

B. Administrative Update:

Cameron Faustman, our experiment station advisor from CT provided a national update. He noted that last year AFRI was a big issue, affecting not just research, but also extension and some traditional education. The loss of Roger Beachy as director of NIFA may change how projects will be handled in the future. The Farm bill is currently up for renewal and Cameron indicated that three issues would be of concern:

1. Indirect costs: the academic community would like to see the rate increased from the current 25% to closer to 50% or more. Congress is not interested in this at this time with the state of the economy.

2. Matching funds: For some USDA programs you may now need to find somewhere between 0 and 100% match. NIH and NSF do not have this match requirement so it could put a strain on grantees.

3. Funding lines for NIFA: There are currently 54 different line items seeking funding. (All of our universities belong to APLU, and pay dues to this organization to help us get funding for our programs.) Why don't we just go for one line item in the budget and then let USDA figure out how to use it. Some groups still want the 54 lines, because they already get some of this from one line item or another and don't want to lose what they already get. Lobbyists say it is easier to ask for one line. Then there are some who don't like the formula funds concept, whereas others do and want to protect it, but still have some competitive funds. To start fresh congress would have to pick a base year, and if funding goes below the base year, all the cuts would come from the competitive side, not formula funds. If an increase in funding should occur, then both would get some of the funds. Research people think extra funds should go 70% to competitive, but extension people say just split it 50/50.

On the research side, the CRIS reporting system will be replaced with REEport, to begin in April 2012, which will be phased in. It will probably start with the integrated grants fist then go to the HATCH and other formula funds.

Northeast planning grants are still available for up to $10K to bring groups together, must have at least 2 Northeast Schools involved. This is a mechanism to get a group of scientists together who might not normally cooperate on projects, and to help them apply for larger grants. Ken Koelkebeck said he ask Ruby Mize about Multistate funding with these grants.

C. Approval of minutes of previous meeting.

Mike Darre reviewed the minutes of 2010. Ken Anderson moved to accept the minutes as distributed. Darrin Seconded. The minutes were approved.

D. Compiling the 2011 annual report

Ken K. asked that the short reports of one paragraph with references be emailed to him no later than Dec 14, 2011, so he can put together the NIMMS report. He would like the individual reports sent to him in Rich Text Format (RTF). In addition, we need to have our full station reports to him by first week of January 2012. He asked to make sure you *Highlight* collaboration in your final reports. These reports should also be in RTF format. Our current project ends in 2014 which means we need to first ask for the OK to rewrite in 2012. The rewrite needs to be completed in 2013. So need to have it ready for review by March 2014. According to Ruby Mize it's better to start the process in March 2013. We need to submit a Midterm Review together with the Request to Write by March 2013. This will give us ample time to have the proposal drafted and peer reviewed and submitted to the review committee

at their Sept. 2013 meeting or the March 2014 meeting. The last chance to get an approved revision is July 2014. However, the entire process depends on what they decide to do in the future. If the project is to be terminated, or revised building on the current NE-1042 accomplishments or perhaps they have new methodologies they want to pursue in the next projects. It would be great if we know how funding will be by early 2013. Sally asked about providing training information to producers, such as making videos for DVD or Webinars, about all the environmental aspects of rearing poultry that we have researched over the years. The group agreed that would be a good idea.

E. Station Reports

CT Mike Darre reported on a project recently completed comparing laying hen performance under CFL or LED lamps. He noted that placing LED lamps directly above each cage of birds provided even illumination for each cage level. However his results with this pilot study did not indicate any significant differences in egg production or feed efficiency with between the standard CFL ceiling lamps at high or low level illumination and the LED lamps. He noted that the LED lamps did significantly decrease their illumination value over the 5 months of the study, which seems to be one of the drawbacks to the current generation of LED lamps. He is trying to get a commercial house study underway. He also noted that he is still studying the use of natural plant extracts and other GRAS short and medium chain fatty acids for reduction of Salmonella and Campylobactor in poultry.

IA Tim Shepherd and Hongwei Xin are both participating in a project titled Coalition for a Sustainable Egg Supply – with their focus being a laying hen housing research project. This project is in collaboration with UC Davis, Michigan State and others. They are studying indoor air quality under different housing systems: Cages, Aviary and Enriched Cage systems. They are also looking at production efficiency. Their system takes 10 samples of air per hour for ammonia, methane, nitrous oxide, carbon dioxide, oxygen and water vapor. Their data is sent to a real-time web page so they can check on the facility from anywhere anytime.

A comprehensive assessment of aviary systems is also being undertaken. They are looking at air quality, heat and moisture, electrical and fuel, microbiological, welfare and economics of the facilities. They have seen increased particulate and gas values under this housing system, so far.

IL Angela Green is currently working on data collection and analysis for a Passageway Preference Chamber. She is seeking an answer to "What type of doorway is preferred by birds?" She is also looking at time budget analysis using automatic electronic tracking of birds. This is to study if they have a preference for different environmental conditions, such as heat, gas emission, etc.

Ken Koelkebeck is researching the use of lower cost feeds /low energy feeds for SCWL hens. He made formulations at 85, 90, 95, 100 and 105% of energy requirements. He reported that if you increase energy, the hens produce more eggs, however, the return over feed costs was best at 90% energy values, relative to the current cost of feed.

USDA/NIFA Rich Reynnells said the Cameron Faustman pretty much said it all, but added that at the USDA, budgets have been cut , offering a buyout for people retiring.

IN Hengwei Chen is conducting research on the effects of heat stress on the welfare of laying hens. His group is looking at how genetics and nutrition can be altered to help alleviate heat stress. They have KGB –kind, gentle birds and the DeKalb XL commercial strain. The KGB birds showed some heat tolerance better than the DeKalb birds, relative to some stress indicators. In study two they used antioxidant supplementation to reduce oxidative stress during heat stress. In this study they used HL W36 hens. The antioxidant improved their response to heat stress. The antioxidants used were mostly vitamin E and C with other ingredients. Future work will be to select birds based on heat tolerance, and other antioxidants. They will also look at aggression in birds, using biomarkers and how different housing types affects bone density and behavior.

MI Darrin Karcher and others at MI are studying the preference of turkey poults for familiar visual cues and use of cues in learning. Early rearing environment may affect welfare, so if we can modify this it may reduce fearfulness, etc. Try to reduce floor eggs by training to a visual cue to use nest boxes. Most birds like green, yellow and red first than orange and purple and blue was the least attractive to the birds. However, turkeys are highly fearful of novel environments and objects and did not do the Y maze or other methods used to try to see if the birds would approach a visual cue. So now they are looking for new ways to test the birds.

They also are using wireless sensors for the detection of laying hen location and behavior within a particular space.

Darrin and the Michigan State group are also working on the Coalition for Sustainable Egg Supply (CSES). He noted that there are several different project teams involved with the CSES.

MN Sally Noll reported that the light weight turkey syndrome study is pretty much over. For the light weight turkey syndrome, they found that it starts to occur early in growing period. Light weight poults had more bursal atrophy compared to heavy weight birds. Heavier weight poults had a more mature immune system. They are currently conducting feeding trials with DDGS feed and also on diet influence on gut pathogens, (Ecoli and Salmonella). She is also looking into DDGS and electrolyte balance because it may be variable in levels of Cl and S.

NC Ken Anderson runs the NC laying hen test and has summarized the last 50 years of test data. They have recently added organic, cage free and free range to the cage test. They have 19 strains of hens also have a heritage Barred Plymouth Rock breed for which current data fits exactly with the 1958 hen data. He found that for spacing above 73 sq in per bird, no improvement in production values.

He is trying to develop a prediction program for a non-anorexic molt program. He reported that the pattern of weight loss is the same for the feed restricted and non-feed restricted molt programs.

They will be making improvements to their physical facilities with new cage and free range facilities.

USDA / MS - Jody Purswell is the key project member at the USDA labs in MS and noted that they have two research groups there, one in disease and one in production. His current study is on the thermal environment and production efficiency. For this they are looking at 3kg+ broilers for reducing heat stress by altering the ventilation to reduce problems. He is looking for fans that will do 600 fpm or more, but would like to get velocity of 1000 fpm.

In another study they are studying light intensity and production efficiency of broilers. They are using intensities between .2 and 25 lx and looking at physiological values. The combination of low temp and low light intensity improves broiler live performance. High temp or high light intensity reduces live performance.

They are also studying housing air quality. Cold winters increase CO_2 in older birds due to decreased ventilation. Relative to this they are looking at solar energy systems and are going to calculate the solar radiation for US broiler houses. This may be useful for solar cells for energy or heating of broiler houses. In addition, they are looking at attic ventilation patterns with and without blocked ridgevents.

Another area of study is on litter materials and management. They are researching how to best recycle litter. One way is windrowing in the broiler house as a means to heat litter to kill microbes. In another study they looked at chopped switchgrass, Bermuda grass and pine shavings as a litter material. They found no real differences between the three treatments. They are also studying litter amendment applications, simulation of two-stage evaporative cooling systems and chick temperature preferences, 3D body scanning to determine body dimensions at different stages of growth and evaluating functional efficiencies of heating systems. They have built a chicken house on wheels for educational demonstrations and it is very successful.

The meeting recessed at 5:50 pm and we went to Jupiters pizza house for dinner.

Saturday, October 22, 2011

The meeting was called to order again a 8:20 am. Ken Koelkebeck stated that the registration fee would be $40 and all paid and were given a receipt.

A. Committee Business

We discussed our academic advisors for the group. Ken Anderson suggested Dr. Kate Barger, a Poultry Vet for Cobb and head of their animal welfare programs. It was also suggested Dr. Peter Gruhl, with Hybrid Turkeys and Dr. Jesus Arango, from HyLIne, who is a research geneticist. We should also find someone from the fast food industry.

Bob Buresh, has asked to leave the group because of job constraints, so we need to send a thank you letter for his service to the committee.

Other scientists we would also like to invite to join the project are Hong Li from DE and Joe Gardner from Stanford (CA).

Ken K. will send out a reminder that the reports are due in by December 14, 2012.

B. Report of the Nominating committee:

The committee nominated Jody Purswell for the junior executive position. The nominations were closed and Jody Purswell was elected as the new junior executive for the project.

The Executive committee leadership for 2012 is: Angela Green as Chair, Darrin Karcher as Senior Executive, Mike Darre as Secretary, and Jody Purswell as Junior executive.

C. New business for next year.

Jody from MS will get switchgrass for Ken Anderson to test in NC. Miscanthus grass may also be used for litter. Ken Koelkebeck, IL, said they were testing some switchgrass for litter also.

Mike Darre, (CT) Roger Lein (AL) and Ken Anderson (NC) will collaborate on lighting systems for enriched and aviary cage systems in NC

Janice Swanson (MI), Joy Mench (CA), Ruihong Zhang (CA) Hongwei Xin (IA), and Hong Li (DE) will be collaborating on animal welfare issues relative to new chicken housing systems. Ken Anderson is also doing some of this at NC but cooperates with the UDSA on his projects.

Darrin Karcher (MI) will be looking at 4 densities of birds in enriched colony cages on production and behavior parameters. Hengwei Cheng (IN) will collaborate on this also. We need to see if we could get the monitoring system used for tracking in gambling facilities to track birds, because this is a very sophisticated system. Darrin would also like to do some lighting studies at MI.

Mike Darre (CT) and Ken Anderson (NC) will work on the use of natural plant extracts for SE and Campylobactor control. They will also look into natural dewormers for use in organic poultry.

Sally Noll (MN) has some good facilities for turkey research and will be doing follow up studies on the Light Turkey syndrome, breeder hen age, and nutrition. Some other future areas would be on turkey ventilation with Jody (MS). She would like to do more on turkey behavior and bone strength with Darrin (MS) and work on lighting, such as LED's with Mike Darre (CT) and others. She is also looking at recycled gypsum for litter and will perhaps work with switchgrass.

Janice Swanson and Darrin Karcher (MS) will be looking at gait scoring in ducks.

Hengwei Cheng (IN) will be looking at behavioral aspects of the KGB birds under various environmental treatments and will continue with the heat stress studies. He may work with Darrin Karcher (MS) on density vs temp for heat stress studies.

Ken Anderson (NC) will be building new enriched cages, aviary, cage free floor and range and standard cages for studying different densities and environments. He will also be looking at body weight distribution over time and following molt.

It was suggested that we try to bring people from all the different multistate projects related to poultry together some time to talk about possibly getting funding that might help all of us.

All members of the project who were not in attendance should review the collaborative aspects discussed above and let us know where you would like to collaborate.

The formal meeting adjoured at 9:55 am and most of the group went on a farm visit to the Uof I poultry facilities. On the tour we saw the preference chambers built by Angela Green and met Chet Utterback, the farm manager, who gave us an excellent tour of the poultry research facilities.

Respectfully Submitted by Michael J. Darre, Secretary.

Group Picture of the participants of the 2011 NE-1042 meeting at the University of Illinois.