

MINUTES
NCCC-042 Annual Meeting
Orlando , Florida
January 4th and 5th , 2011

Tuesday, January 4th.

JOINT NCCC-042 AND S-1044 COMMITTEES MEETING

The meeting was called to order at 8:10 am with Robert Dove serving as Chair.

Attendees: Dr. Robert Dove (Georgia – S-1044 Chair), Dr. Mark Estienne (Virginia Tech – S-1044 Vice Chair), Dr. Chris Hostetler (South Dakota State – S-1044 Secretary), Dr. Brian Kerr (USDA - ARS-NLAE, Ames – NCCC-042 Chair), Dr. Sam Baidoo (Minnesota – NCCC-042 Vice Chair), Dr. John Patience (Iowa State – NCCC-042 Secretary), Dr. Layi Adeola (Purdue), Dr. Mike Azain (Georgia), Dr. Joel Brendemuhl (Florida), Dr. Lee Chiba (Auburn), Dr. Tom Crenshaw (Wisconsin), Dr. Gary Cromwell (Kentucky), Dr. Gustavo de Lima (EMBRAPA – Brazil), Dr. Gretchen Hill (Michigan State), Dr. Sung Woo Kim (North Carolina State), Dr. Merlin Lindemann (Kentucky), Dr. Don Mahan (Ohio State), Dr. Charles Maxwell (Arkansas), Dr. Phil Miller (Nebraska), Dr. Jim Nelssen (Kansas State), Dr. Jim Pettigrew (Illinois), Dr. Marcia Shannon (Missouri), Dr. Lee Southern (Louisiana State), Dr. Hans Stein (Illinois), Dr. Eric van Heutgen (North Carolina State).

Administrative Advisors: Dr. Neal Merchen (Illinois), Dr. Nancy Cox (Kentucky).

Guests: Dr. Steve Smith (NIFA), Dr. Victoria Siegel (Purdue)

The agenda was presented by Robert (Attachment #1). An attendance roll was circulated to the attendees for completion.

All attendees introduced themselves.

The joint meeting received comments from the Administrative Advisors: Dr. Nancy Cox, University of Kentucky and Dr. Neal Merchen, University of Illinois at Urbana-Champaign. Dr. Cox commented on the longevity of the S-1044 committee and noted that it was nominated for the multistate research award but it was not successful. She challenged the committee to think ahead for the things that need to be changed in 2013 including the amount of reach and how we expand that reach. Dr. Merchen indicated that a mid-term review of NCCC-042 would occur this year. NCCC-042 was nominated but was not selected as the North central nominee for the multi-state project award. He also commented on the future prospects for research in traditional animal production, due to changes in the past fiscal year that continue to direct activities away from it. He noted that continued fiscal constrictions and infrastructure expenses have led to changes in how research will need to be conducted. He left the committee with two questions: Where will the next generation of Swine Research Nutritionists come from, and where will the leadership in the future come from?

The committees received comments from Dr. Steve Smith from National Institute of Food and Agriculture (NIFA), which was created by the 2008 Farm Bill. He provided an overview of the administration and organizational structure of NIFA and also announced that 6 of the 7 2011 RFA requests will be released in the next 2 months. The seventh (for the Fellowships Grant Program),

will be released later in the year. Dr. Smith also advised that opportunities will exist in joint initiatives with NIH (Administered by NIH) to look at the pig as a model in human nutrition research; calls will come out in September of 2011 and 2012. Dr. Smith provided two handouts (Attachments #2 and 2a). The question and answer period focused primarily on budget issues and sources of future funding.

Station Reports

Reports from the following universities were circulated prior to the meeting: Auburn, Arkansas, USDA-ARS-NLAE, EMBRAPA, Georgia, Illinois, Purdue, Kansas State, Kentucky, Minnesota, Nebraska, North Carolina State, Ohio State, South Dakota State, Virginia Tech and Wisconsin. Reports had been submitted by Florida and Michigan State but not included in the circulation by mistake. A report from Iowa State was handed out at the meeting (Attachment #6).

A break was called until 10:00 am, after which the NCCC-042 and S-1044 committees met separately.

NCCC-042 COMMITTEE MEETING

Attendees: Dr. Brian Kerr (USDA - ARS-NLAE, Ames – NCCC-042 Chair), Dr. Sam Baidoo (Minnesota – NCCC-042 Vice Chair), Dr. John Patience (Iowa State – NCCC-042 Secretary), Dr. Layi Adeola (Purdue), Dr. Mike Azain (Georgia), Dr. Tom Crenshaw (Wisconsin), Dr. Gary Cromwell (Kentucky), Gretchen Hill (Michigan State), Dr. Sung Woo Kim (North Carolina State), Dr. Don Mahan (Ohio State), Dr. Phil Miller (Nebraska), Dr. Jim Nelssen (Kansas State), Dr. Jim Pettigrew (Illinois), Dr. Marcia Shannon (Missouri), Dr. Hans Stein (Illinois).

Administrative Advisors: Dr. Neal Merchen (Illinois).

Guests: Dr. Steve Smith (NIFA)

Chair Brian Kerr called the meeting to order and invited members of the NCCC-042 Committee to present sub-committee reports.

Nutrient Metabolism Subcommittee (Chair, Tom Crenshaw)

Members: Tom Crenshaw (WI), Mike Azain (GA), Hans Stein (IL) P. Miller (NE), Brian Kerr (IA, USDA-ARS).

Tom reported on the study on premix composition entitled “Validation of the NCCC-42 vitamin-trace mineral premix in grower pigs – a regional study” undertaken at three sites: Wisconsin, Kentucky and South Dakota. He further reported that the manuscript submitted to the Journal of Animal Science was rejected. Discussion followed on how to proceed with the manuscript, such as eliminating the unrepeatability outcome, or submitting the manuscript to a different journal.

Moved by Crenshaw, Seconded by Shannon that the manuscript be submitted to another journal, with Tom, Hans and Merlin making the decision on the journal.

Hans reported on submission of the manuscript on calcium digestibility to the Journal of Animal Science. The manuscript was accepted with revisions, the changes were made and the

manuscript re-submitted in early December. No final decision has yet been received from the journal.

Sow Subcommittee (Chair: Sam Baidoo)

Members: Jim Nelssen, Sam Baidoo and Sung Woo Kim.

Sung Woo advised that he has a group working on a proposal on oxidative stress in sows under various nutritional and management environments. He handed out a draft proposal and advised that he will present a more detailed proposal for consideration on day 2 of the meeting (Attachment #3).

Don Mahan is undertaking a sow study investigating the phase feeding of gestating gilts and sows on reproductive performance at KS, IL, WI and OH; due to problems with vomitoxins, the experiment was delayed and has not yet been completed. The results of this experiment will be reported next year.

Nursery – Growing-Finishing Subcommittee (Chair, Don Mahan)

Members: Don Mahan (OH), Gary Cromwell (KY), Layi Adeola (Purdue), Gretchen Hill (MI), Marcia Shannon (MO), Jim Pettigrew (IL), John Patience (IA).

Gary Cromwell reported that a paper submitted to JAS on the previous DDGS study was accepted with minor revisions. The changes have been made and the manuscript re-submitted; no decision has yet been received from the journal. An abstract reporting on this study was also presented at MW-ASAS. It was also reported in the National Hog Farmer.

Gary also presented a proposal on a follow-up study to look at the impact of different DDGS phasing regimens on 1) carcass belly firmness and iodine value, and 2) on tissue levels of minerals (liver), vitamin E (liver) and T-bars (loin). Tissue assays will be undertaken due to previous findings that the use of DDGS has been associated in sows with a 20 to 25% reduction in blood and milk levels of vitamin E. Don suggested this may be due to the high sulfur levels in DDGS, as it can act as a pro-oxidant. The highly unsaturated fatty acid levels may also be involved. Gary suggested this proposal be submitted to the National Pork Board for funding. The following stations agree to run 2 replicates of this growth experiment: MI, MO, NE, KY, IL, Purdue, MN and IA. Don Mahan will receive samples of liver and loins (Attachment #4).

Don Mahan reported that there has been no further progress on the selenium project.

Don Mahan reported that the vomitoxin study was completed with excellent support from the participating stations. It was completed rapidly and effectively. Don was complimented by the committee on a well-run study. It was agreed that the data will not be submitted to a scientific journal.

Previously, a study had been proposed on piglet birth weight effects on subsequent performance. It was decided by the participants that this project will not proceed.

Don shared in confidence the results of mineral assays completed on the following macromineral sources: limestone, dicalcium phosphate, sodium phosphate and monocalcium phosphate. All assays were done by ICP except selenium which was done by flourometry. Don commented on

the high degree of variation of some minerals, and also the high levels of some minerals, such as iron and manganese, in some of the products.

Research Proposal #1

The Nursery-Grow Finish Subcommittee proposed a new study entitled "Dietary Fat Sources and Levels for Weanling Pigs." It will include 2 fat sources (soy oil and choice white grease) at 1%, 3% and 5% add rates. Don offered to manufacture and pellet the diets in his facilities if requested (Attachment #5).

Following discussion on such aspects of the proposal as the complexity of the 3 phases of diets, 8 stations agreed to run the study: IL, Purdue, GA, MO, KS, MI, KY, MN.

Brian Kerr called for a recess of the NCCC-042 Committee meeting for lunch at 12:00.

JOINT NCCC-042 AND S-1044 COMMITTEES MEETING

The joint meeting of the NCCC-042 and S-1044 committees reconvened at 1 pm with Brian Kerr serving as Chair.

Update on the Swine NRC

Lee Southern, Chair of the NRC committee, presented an update of the development of the new Nutrient Requirements of Swine document. The feed database is being revised and is almost completed. Also, there is a draft of almost all chapters and these are being reviewed by other committee members. The next major step, after the document is completed, will be an external review. The final document should be available in 2012.

The AAFCO Collaborative Sample Check Program (Dr. Victoria Siegel, Office of the Indiana State Chemist, Purdue University)

The American Association of Feed Control Officials (AAFCO) is a long established organization that has as its goal the production of safe, effective and useful animal feed. It provides a mechanism for implementing uniform and equitable laws, regulations, etc. related to the production of animal feed.

The Check Sample program

(<http://www.aafco.org/Portals/CheckSampleProgram/tabid/74/Default.aspx>) has as its goal the maintenance and improvement of analytical accuracy of feed testing laboratories. It currently has 240 participants worldwide, with 58% in the US, 30% international and 10% in Canada. American and Canadian participants pay \$255 per year and receive 12 samples in turn. Members undertake assays on the samples and submit their results to AAFCO, who summarize the data. The mean result is considered to be the actual nutrient content of that sample. The system also allows for determination of robust statistics on the analytical outcomes, to determine if the variation is within acceptable levels.

Dr. Siegel went on to provide examples of their data, as well as common statistical analyses that they employ, and which have evolved in the past few years. She also provided guidance in how to interpret analytical results.

The website for AAFCO is www.aafco.org. The email address of Dr. Siegel is vsiegel@purdue.edu.

Laboratory and Metabolism Techniques

Brian Kerr introduced the subject, explaining his concern about the variation in methodologies being employed in metabolism studies conducted within the field of swine nutrition. The objective of the discussion was to prepare a review paper covering the various topics related to metabolism experiment methodology or to develop an experiment to address key issues. Topics of concern include length of adaptation to the experimental diet, method of drying and fecal collection method (total versus use of exogenous marker). There was extensive discussion on the design of metabolism experiments on such topics as:

- Accuracy and precision of marker assays in feed and in feces
- Length of acclimation period and collection period
- Impact of pig body weight and gender
- Method of feces and urine drying
- What specific assay methods are most appropriate for nitrogen, fiber, starch, etc.

Following the discussion, it was agreed that Brian Kerr will write a more detailed summary of the discussion and the metabolism sub-committee will prepare a protocol for an experiment to address some of the issues raised during the discussion.

The meeting adjourned at 5:00 pm.

Wednesday, January 5th

NCCC-042 COMMITTEE MEETING

The NCCC-042 Committee Meeting was reconvened by Chair Brian Kerr at 8:10 am.

Business Meeting

The Chair called for comments on the minutes of last year's meeting. It was agreed that the final copy of the minutes was correct.

Moved by Gary Cromwell, Seconded by Sam Baidoo that the minutes of the 2010 annual meeting be accepted. Carried

Committee membership

Brian Kerr asked for a review of committee membership.

Layi Adeola – Indiana, Mike Azain – Georgia, Sam Baidoo – Minnesota, Gary Cromwell – Kentucky, Scott Carter – Oklahoma, Tommy Crenshaw – Wisconsin, Gretchen Hill – Michigan, Chris Hostetler – South Dakota, Brian Kerr - USDA-ARS, Iowa, Don Mahan – Ohio, Neal Merchen – Illinois, Phil Miller – Nebraska, Jim Nelssen – Kansas, John Patience – Iowa, Jim Pettigrew – Illinois, Marsha Shannon – Missouri, and Hans Stein – Illinois.

It was agreed that since they have not attended meetings in quite some time, Xingen Lei (Cornell) and Debra Aaron (Kentucky) will be removed from the committee membership list. It was also agreed that Dr. Scott Carter should be added to the list. His absence was an oversight.

Discussion followed on the merits of inviting swine nutrition researchers from Canada.

Moved by: Gary Cromwell, seconded by Don Mahan that Martin Nyachoti, Kees de Lange and Ruurd Zijlstra be invited to attend the 2012 annual meeting as guests.

Action: It was agreed that Brian Kerr invite Ruurd Zijlstra, Kees de Lange and Martin Nyachoti to the 2012 annual meeting as guests, when they can present some of their research and the members of the committee can get to know them better. If agreed, an invitation to join the committee would be extended to them.

Excellence in Multi-State Research Award

Moved by Gary Cromwell, seconded by Layi Adeola that the 2010 award nomination be updated and re-submitted again this year. Carried.

Action: Don Mahan will review last year's submission and update as he sees fit. He will then distribute it to all committee members for their additional input. Don requested that all committee members contribute to this nomination, as all members will benefit if successful. Neal Merchen suggested that 2 key successes of ongoing research be highlighted, with particular emphasis on the impact of that research on new knowledge and industry action.

Committee Executive

Moved by: Don Mahan, seconded by Jim Nelssen that Marcia Shannon be nominated for secretary of the committee. Nominations closed and Marcia was declared elected.

The 2011/12 Executive will therefore be:

Chair: Sam Baidoo (University of Minnesota)

Vice chair: John Patience, Iowa State University)

Secretary: Marcia Shannon (University of Missouri)

Research Proposal: Lipids in Nursery Diets

Discussion followed on this proposal with respect to the inclusion of an exogenous digestibility marker in the diets. Following discussion, it was agreed not to include a marker; if digestibility needs to be determined, this can be done in a later experiment.

Moved by: Layi Adeola, seconded by Jim Nelssen that the phase 3 diet in the proposal be reformulated to remove lactose, soy protein concentrate and fish meal. Carried.

Don Mahan agreed to manufacture the experiment diets centrally and arrange transportation to all participants. Participating stations will reimburse Don for the feed and transportation costs. This experiment will be presented to the joint meeting of the NCCC-042 and S-1044 committees later this morning.

Research Proposal: Metabolism procedures

Action: Brian Kerr and Tom Crenshaw have agreed to put together a proposed study on digestibility methods to consider some of the issues raised at the meeting yesterday. The proposal will be sent out prior to the 2012 Annual Meeting to determine interest in participation among committee members. Brian Kerr also offered to distribute a survey to all committee members (NCCC-042 and S-1044) to determine the capacity to undertake metabolism experiments at each member university.

Research Proposal: Antioxidant Stress on Sows

Sung Woo Kim has proposed a multi-site experiment to determine the degree of antioxidant stress on sows fed typical diets and managed in typical ways. Ten sows at each participating site will be bled at d 35 to 40 and d 90 to 100 of gestation. The blood samples must be spun as quickly as possible, the plasma harvested and frozen in liquid nitrogen and then stored at -80C. The samples will be sent on dry ice to Sung Woo for analysis.

Sung Woo asked permission to involve a graduate student in this project.

Moved by: Sam Baidoo, seconded by Jim Pettigrew that the student be allowed to participate in the project, including co-authorship on any resulting publications. Carried.

The NCCC-042 committee meeting was adjourned at 9:30 for a group photograph.

JOINT NCCC-042 AND S-1044 COMMITTEES MEETING

The joint meeting of the NCCC-042 and S-1044 committees reconvened at 10:00 with Brian Kerr serving as Chair.

Date of 2012 Meeting

It was agreed that the date of the 2012 meeting would be January 4th and 5th, with travel on the 3rd.

Joint Research Projects

Research Proposal: Dietary Fat in Weanling Pig Diets

This project will be led by Don Mahan. Mike Azain will undertake the lipid analyses. The following stations agreed to participate in the study: AK, MI, MO, MN, GA, IN (Purdue), KY, NC, IL and OH.

Don will send out a final protocol to all participating stations. He will manufacture all of the feed and arrange for its transportation to each participating station. The cost of the feed and the transportation will be borne by the participating stations. Don asked that the study be completed within 90 days of the arrival of the feed, to avoid confounding due to fat deterioration.

Research Proposal: Oxidative Stress in Sows

Sung Woo Kim will lead this study. Ten sows at each participating site will be bled at d 35 to 40 and d 90 to 100 of gestation. The blood samples must be spun as quickly as possible, the plasma harvested and frozen in liquid nitrogen and then stored at -80C. The samples will be sent on dry ice to Sung Woo for analysis. Information on sow performance and offspring will be required to be submitted as well. Sung Woo will provide a detailed protocol to all of the participating sites: WI, NC, Brazil, OH, KS, MI, MN, KY, SD, NE, IL.

Research Proposal: Distillers Dried Grains with Solubles and Soft Fat

Gary Cromwell will lead this project. The experiment will investigate various DDGS withdrawal schemes on the incidence of soft fat in market hog carcasses. DDGS will be assayed for mycotoxins. Since there are already enough participants in this study, Gary did not request additional participation.

Research Proposal: Tribasic Copper Chloride in Sow Diets

Robert Dove will lead this project, investigating the effect of tribasic copper chloride on sow productivity. He will send out a detailed protocol to all committee members and request participation at that time.

General Discussion

It was agreed that station reports in the future be circulated ahead of the meeting, that they be sent as pdf files if possible and the length should not exceed 2 pages (11 pt font).

There was also discussion on the Wisconsin study of hump-backed pigs, as reported in their 2011 station report.

Adjournment

Moved by: Sam Baidoo, seconded by Layi Adeola that the meeting be adjourned. It was 11:15 am.

Annual Meeting Agenda
NCCC-042 and S-1044

January 5 & 6, 2010

Rosen Plaza Hotel
9700 International Drive, Orlando, Florida

January 5

Joint Session

- 8:00 Introduction of officers, committee members, and guests
S-1044: Eric van Heugten, chair; Robert Dove, vice chair; Mark Estienne, secretary
NCCC-042: Mike Azain, chair; Brian Kerr, vice-chair; Sam Baidoo, secretary
- 8:20 Comments from Administrative Advisors
Neal Merchen – NCCC-042
Nancy Cox - S1044
- 8:40 Comments from Adele M. Turzillo, Ph.D., National Program Leader - Animal Production Systems USDA - National Institute of Food and Agriculture
- 9:15 Distribute Station reports
- 9:30 Break

Break-out session

S-1044

- 10:00 Research Discussion. Update, review, planning, execution, publication.
Review agenda
Review of 2009 minutes
Comments from Department Head monitor (Mathew)
Procedures, deadlines, and other project items (Cox)
- 10:30 Review of past projects
Phytase (Lindemann and Radcliffe)
Sow nutrient survey (van Heugten)
Low protein (Brendemuhl)
Carnitine (Dove)
- 11:00 Discuss objectives for approved project
Organic Mineral (Maxwell)
Appetein (Southern)
Copper (Dove)

NCCC-042:

- 10:00 Review Agenda
Research Discussion (Update, review, planning, execution, publication)
To be led by subcommittee chairs.

Nursery-Growing-Finishing Subcommittee (Mahan)
Nutrient Metabolism Subcommittee (Crenshaw)
Sow Subcommittee (Baidoo)

12:00 Lunch

Joint Session

- 1:00 Open discussion, Questions on Station Reports.
- 1:30 "What questions need to be addressed with regard to amino acid nutrition". Rob Payne, Director of Nutrition and Technical Services, Evonik Degussa, Corp.
- 2:30 Break
- 3:00 The AFIA, industry issues in swine nutrition and IFEEDER (the Institute for Feed Education and Research (by Ross Hamilton, AFIA Representative)
- 4:00 Update on the National Swine Nutrition Guide (Eric van Heugten, NCSU)
- 4:30 Open discussion of station reports or other issues
- 4:50 Discussion of next year's meeting place and date (January, 2011)
- 5:00 Adjourn
- 6:00 For those desiring to go to dinner as a group, meet in lobby of hotel

January 6:

Break-out session

NCCC-042

- 8:00 Committee Business Meeting
Review and Approval of minutes of the 2009 annual meeting
Election of officers
Other business
- Discussion of Authorship
- 9:00 Continue with and finalize discussions on research plans for the coming year.
- 9:45 Break

S-1044

8:00 Committee Business Meeting
Election of officers
Other business

8:30: Finalize any discussion on research objectives; set any needed deadlines.

9:45 Break

Joint Session

10:00 Update on NRC Nutrient Requirements, Austin Lewis

10:45 Update on "National Research Support Project", Gary Cromwell

11:00 Share and discuss research projects between the 2 committees. Poll participation in projects.

11:40 Decision on next year's meeting place and date

11:50 Wrap up

12:00 Adjourn