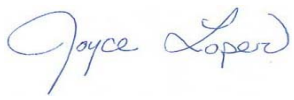
Report NP101 – March 2013

NP 101 Food Animal Production Panel Report

Christina Woods
Program Analyst



_____ 4/11/2013
Joyce Loper, Scientific Quality Review Officer Date

_____ 05/07/2013
Michael S. Strauss, Peer Review Program Coordinator Date

Office of Scientific Quality Review
Agricultural Research Service
Office of Scientific Quality Review

Introduction

This Panel Report provides the background of the 2012 National Program (NP) 101 Food Animal Production Panel Review. The project plans reviewed by these panels were applicable to the mission of the National Program to *"1) safeguard and utilize animal genetic resources, associated genetic and genomic databases, and bioinformatic tools; 2) develop a basic understanding of the physiology of livestock and poultry; and 3) develop information, tools, and technologies that can be used to improve animal production systems, all to ensure an abundant, safe, and inexpensive supply of animal products produced in a healthy, competitive, and sustainable animal agriculture sector of the U.S. economy."*

In collaboration with the Office of Scientific Quality Review (OSQR), and the National Program Leader, Dr. Mark Boggess, divided 27 plans into nine panels. After considering several candidates, Dr. Joyce Loper, Scientific Quality Review Officer (SQRO) appointed a Chair for the nine panels (Table 1).

Table 1. Food Animal Production Panels

Panel	Panel Chair	Panel Meeting Date	Number of Panelists	Number of Projects Reviewed
Panel 1 – Production Efficiency: Genetics & Genomics	Dr. Keith Campbell, Prof Animal Development, University of Nottingham, School of Biosciences, Div Animal Sci, Leicestershire, United Kingdom	July 10, 2012	3	2
Panel 2 – Genomic Selection: Genetics & Genomics	Dr. Susan Lamont, Charles F. Curtiss Distinguished Professor, Iowa State Univ, Dept Animal Sci, Ames, IA	July 11, 2012	5	4
Panel 3 – Physiology: Genetics & Genomics	Dr. Clare Gill, Assoc Prof, Dept Anim Sci, Texas A&M Univ, College Station, TX	June 22, 2012	3	2
Panel 4 – Genetic & Germplasm Technologies	Dr. Jerry Dodgson, Prof & Chairperson, Dept Microbiology & Molecular Genetics, Michigan State Univ, East Lansing, MI	June 21, 2012	4	3
Panel 5 – Nutritional Physiology: Ruminant Dairy	Dr. Barry Bradford, Assoc Prof, Anim Sci Industry, Kansas State Univ, Manhattan, KS	June 28, 2012	4	3
Panel 6 – Nutritional Physiology: Ruminant Beef & Non-Ruminant	Dr. Gordon Carstens, Assoc Prof, Dept Anim Sci, Texas A&M Univ, College Station, TX	July 6, 2012	4	4
Panel 7 – Reproductive Physiology	Dr. Billy Flowers, Alumni Distinguished Prof, Dept Anim Sci, North Carolina State Univ, Raleigh, NC	June 26, 2012	3	2
Panel 8 – Animal Welfare and Stress	Dr. Janeen Salak-Johnson, Assoc Prof, Dept Anim Sci, Univ Illinois, Urbana, IL	June 15, 2012	6	5
Panel 9 – Meat Product Quality & Nutritional Value	Dr. Steven Moeller, Assoc Prof, Swine Ext Specialist, Dept Anim Sci, The Ohio State Univ, Columbus, OH	May 25, 2012	3	2

Dr. Michael Strauss, Peer Review Program Coordinator, and Dr. Loper presented an orientation to the Panel Chairs. Dr. Loper subsequently approved the candidate panelists selected by each Chair. The approvals took into account conflicts of interest and followed guidelines for diversifying panel composition geographically, institutionally, and according to gender and ethnicity. Panelists demonstrated a recognizable level of knowledge of recent research within their respective fields of food animal production. All panels received a telephone/web-based orientation. The Office of National Programs (ONP) provided an overview of the NP 101 Food Animal Production Program. All panels convened online.

Panel Review Results

Along with the Panel's written recommendations, OSQR sends each Area Director a worksheet that shows each reviewer's judgment of the degree of revision their project plan requires. This judgment is referred to as an "action class". The action classes of the panelists are also converted to a numerical equivalent, averaged, and a final action class rating is assigned.

Scientists are required to revise their project plans as appropriate and submit a formal statement to OSQR through their Area Director demonstrating their response to the Panel's recommendations. The project plans are implemented following approval and certification from the SQRO.

Action classes are defined as below:

No Revision Required (score: 8). An excellent plan; no revision is required, but minor changes to the plan may be suggested.

Minor Revision Required (score: 6). The project plan is feasible as written, and requires only minor clarification or revision to increase quality to a higher level.

Moderate Revision Required (score: 4). The project plan is basically feasible, but requires changes or revision to the work on one or more objectives, perhaps involving alteration of the experimental approaches in order to increase quality to a higher level and may need some rewriting for greater clarity.

Major Revision Required (score: 2). There are significant flaws in the experimental design and/or approach or lack of clarity which hampers understanding. Significant revision is needed.

Not Feasible (score: 0). The project plan, as presented, has major scientific or technical flaws. Deficiencies exist in experimental design, methods, presentation, or expertise which makes it unlikely to succeed.

For plans receiving one of the first three Action Classes (No Revision, Minor Revision, and Moderate Revision) scientists respond in writing to panel comments, revise their project plan as appropriate, and submit the revised plan and responses to OSQR through their Area Office. These are reviewed by the SQR Officer at OSQR and, once they are satisfied that all review concerns have been satisfactorily addressed, the project plan is certified and may be implemented.

When the Action Class is Major Revision or Not Feasible, responses and revised plans are provided as above, but must then be re-reviewed by the original review panel that provide a second set of narrative comments and Action Class based on the revised plan. If the re-review action class is no revision, minor or moderate revision the project plan may be implemented after receipt of a satisfactory response and SQRO certification, as described above. Plans receiving major revision or not feasible scores on re-review are deemed to have failed. The action class and consensus comments are provided to the Area but there is no further option for revision of such plans. Low scoring or failed plans may be terminated, reassigned, or restructured, at the discretion of the Area and Office of National Programs.

NP 101 Overview

The following is a summary of the comments made in the panel debriefings of the third cycle. Most panelists were pleased with the overall work presented. There were, however, significant concerns expressed (and reflected in scores) by the Animal Welfare and Stress panel. It was felt that collaborating within USDA-ARS researchers often is an important lost opportunity. Panels felt that some research groups appeared to be insular and lacked potentially valuable external connections and collaboration. It was felt that this would, overall, improve research.

The review outcomes for the current review cycle are summarized in Table 2. Following initial review all but one panel had an average Action Class of at least Moderate Revision with two of those having an average of Minor Revision. One panel, Animal Welfare and Stress, had an average Action Class of Major Revision with one plan receiving a Minor Revision score and the remaining four receiving Major Revision scores. By conclusion of the second review for plans scoring Major Revision or below four panels had average Action Class scores of Minor Revision. Three plans received a second Major Revision score and, thus, did not successfully complete review.

Table 3 shows the initial and final scores for all three cycles to date for the Food Animal Production Panels. The first cycle's initial and final scores were higher than the second and third cycles. Nonetheless, no plans in the current cycle received Not Feasible scores while these were seen in prior review cycles.

Figures 1-3 assess the potential impact of panel size on review outcome, as measured by initial review score. Figure 1 seems to suggest a correlation with plans in larger panels having lower scores. However, the sample size is small and the bulk of low scores were associated with a single research area. When similar data is compared for all three review cycles the impact is not seen (Figure 2). The same is true when data from all plans reviewed in the current review cycle, independent of their National Program, are examined (Figure 3). It is concluded that the apparent relationship in Figure 1 is due to a bias introduced by the small sample size, whereas examining larger amounts of data suggests that panel size does not impact review outcomes.

Figure 4 examines the potential impact in the current review cycle of the number of scientists (SYs) on a plan on the score. It is concluded that the number of scientists does not significantly impact the review, as measured by the initial review score.

Figures 5 and 6 show the distribution of initial and final score for all three cycles of the Food Animal Production Panels. The second cycle had a greater number of Minor Revision scores than the second and third cycles. All cycles were about the same in the Moderate Revision category. The second and third cycles had the higher percentages of major revision scores and the higher proportion of major revision scores in the final review. No plans received initial Action Class scores of Not Feasible in the current review cycle.

Table 2. Initial and Final Scores for the Third (2012) Cycle Expressed as Percentages for the NP 101 Food Animal Production Panels

Panel (No. of plans)	Initial Review						Final Review					
	% No Rev	% Min Rev	% Mod Rev	% Maj Rev	% Not Feas	Avg Initial Score	% No Rev	% Min Rev	% Mod Rev	% Maj Rev	% Not Feas	Avg Final Score
Panel 1 - Production Efficiency: Genetics & Genomics (2)	0.0%	100.0%	0.0%	0.0%	0.0%	6.0	0.0%	100.0%	0.0%	0.0%	0.0%	6.0
Panel 2 - Genomic Selection: Genetics & Genomics (4)	0.0%	0.0%	50.0%	50.0%	0.0%	3.7	25.0%	25.0%	25.0%	25.0%	0.0%	5.2
Panel 3 - Physiology: Genetics and Genomics (2)	0.0%	0.0%	100.0%	0.0%	0.0%	4.0	0.0%	0.0%	100.0%	0.0%	0.0%	4.0
Panel 4 - Genetic and Germplasm Technologies (3)	0.0%	0.0%	66.7%	33.3%	0.0%	3.8	0.0%	33.3%	66.7%	0.0%	0.0%	5.1
Panel 5 - Nutritional Physiology: Ruminant Dairy (3)	0.0%	33.3%	33.3%	33.3%	0.0%	4.2	0.0%	33.3%	66.7%	0.0%	0.0%	4.7
Panel 6 - Nutritional Physiology: Ruminant Beef and Non-Ruminant (4)	0.0%	75.0%	25.0%	0.0%	0.0%	5.4	0.0%	75.0%	25.0%	0.0%	0.0%	5.4
Panel 7 - Reproductive Physiology (2)	0.0%	50.0%	50.0%	0.0%	0.0%	5.0	0.0%	50.0%	50.0%	0.0%	0.0%	5.0
Panel 8 - Animal Welfare & Stress (5)	0.0%	20.0%	0.0%	80.0%	0.0%	2.9	20.0%	40.0%	0.0%	40.0%	0.0%	4.7
Panel 9 - Meat Product Quality & Nutritional Value (2)	0.0%	50.0%	50.0%	0.0%	0.0%	4.7	0.0%	50.0%	50.0%	0.0%	0.0%	4.7
NP 101	0.0%	36.5%	41.7%	21.8%	0.0%	4.2	5.0%	45.2%	42.6%	7.2%	0.0%	5.0

Table 3. Initial and Final Scores for All Cycles Expressed as Percentages for the NP 101 Food Animal Production Panels

Third Cycle, 2012	Initial Review						Final Review					
	% No Rev	% Min Rev	% Mod Rev	% Maj Rev	% Not Feas	Avg Initial Score	% No Rev	% Min Rev	% Mod Rev	% Maj Rev	% Not Feas	Avg Final Score
First Cycle	7.9%	50.0%	26.3%	13.2%	2.6%	5.07	15.8%	55.3%	28.9%	0.0%	0.0%	5.8
Second Cycle	6.5%	22.6%	38.7%	29.0%	3.2%	4.15	9.7%	32.3%	51.6%	6.5%	0.0%	4.95
Third Cycle	0.0%	33.3%	37.0%	29.6%	0.0%	4.2	7.4%	44.4%	37.0%	11.1%	0.0%	5.0

Figure 1. Panel Size vs. Initial Review Score for the Third Cycle of the NP 101 Food Animal Production Panels

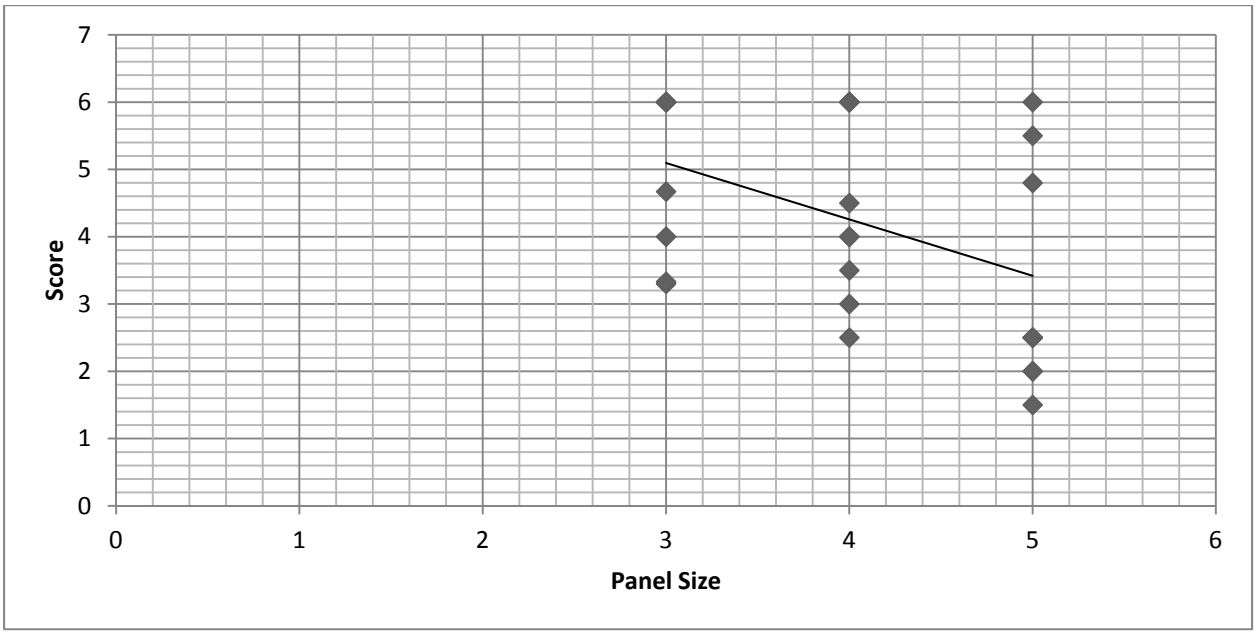


Figure 2. Panel Size vs. Initial Review Score for all Three Cycles of the NP 101 Food Animal Production Panels

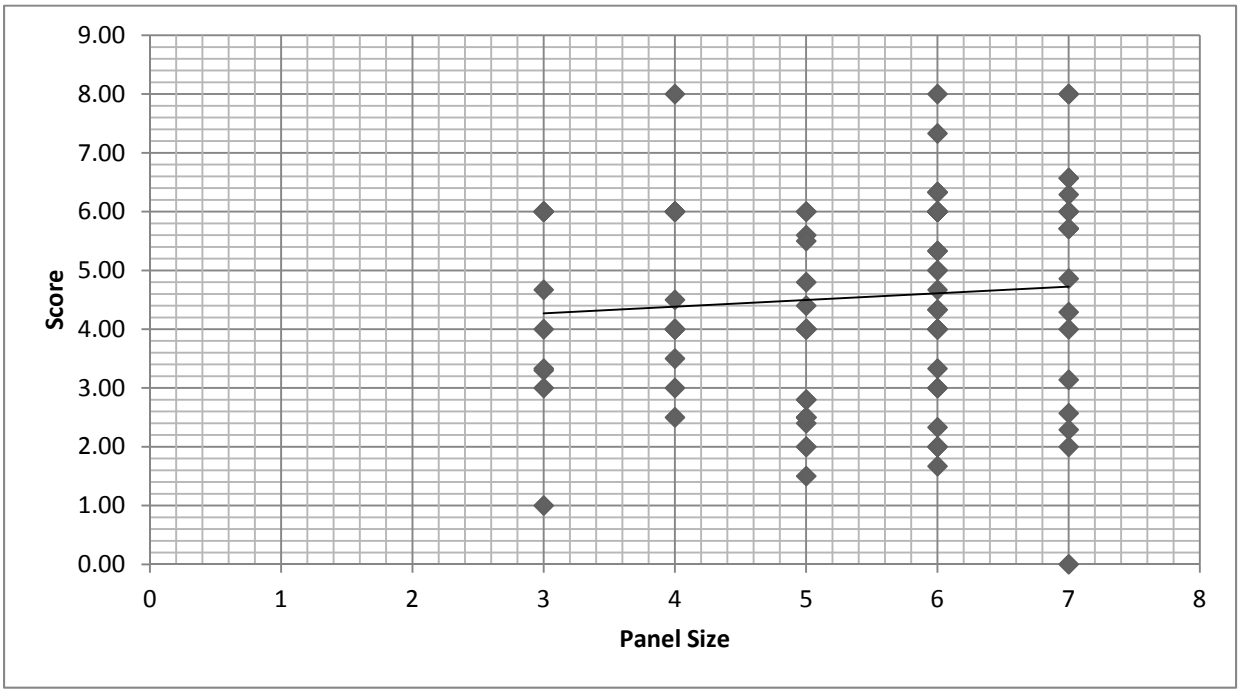


Figure 3. Panel Size vs. Initial Review Score for All Third Cycle Panels

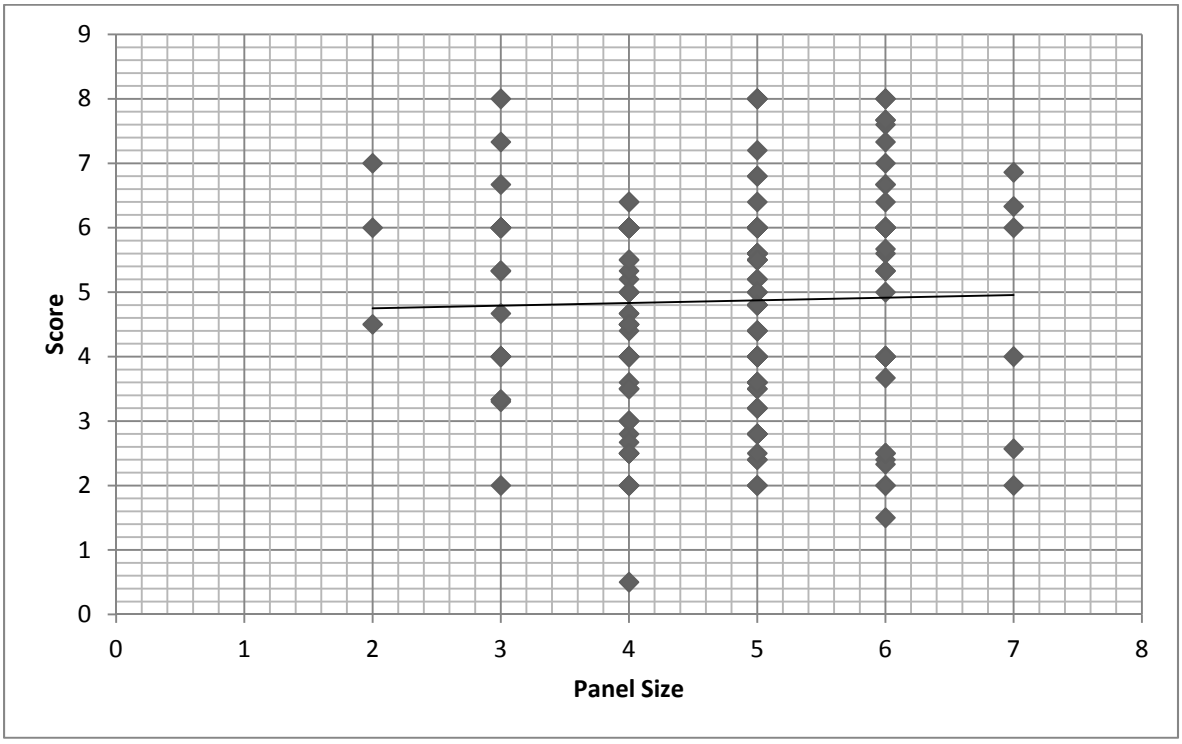


Figure 4. Number of Scientists vs. Initial Review Score for the Third Cycle of the NP 101 Food Animal Production Panels

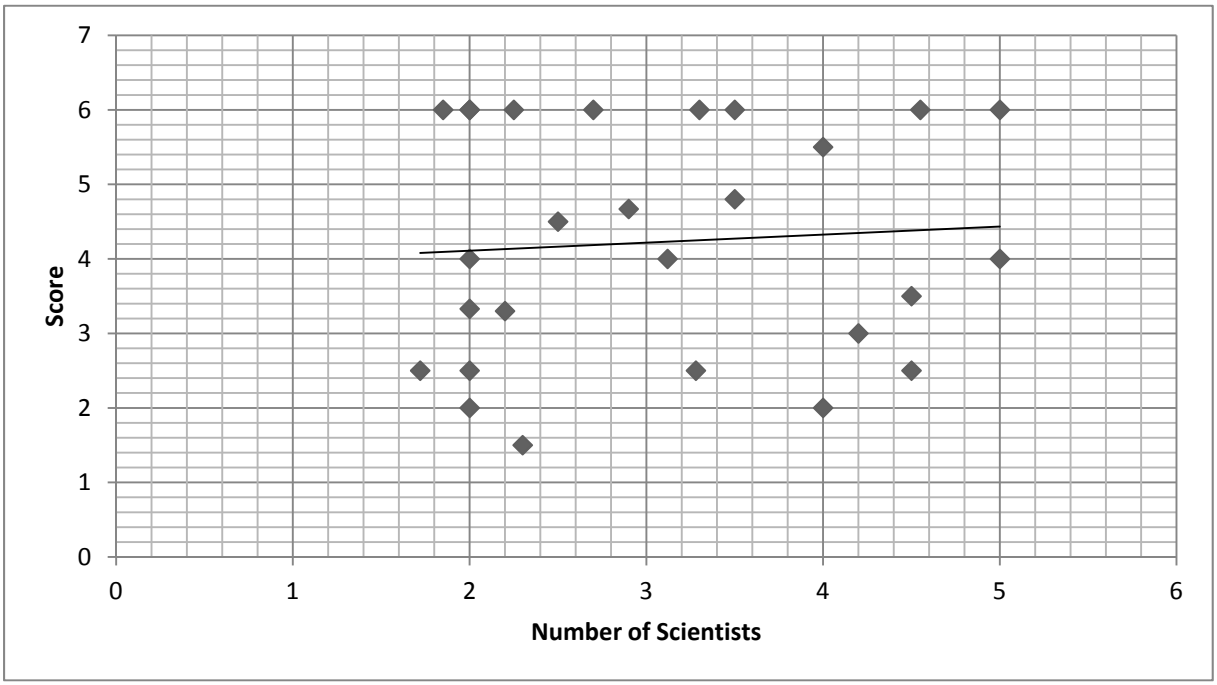


Figure 5. Initial Reviews Scores for the First (2002), Second (2007) and Third (2012) Cycle Distribution for the NP 101 Food Animal Production Panels (average score 5.07; 4.15; 4.2, respectively). The number of plans reviewed by each cycle is in parentheses. Number over columns are the actual number of plans receiving that score.

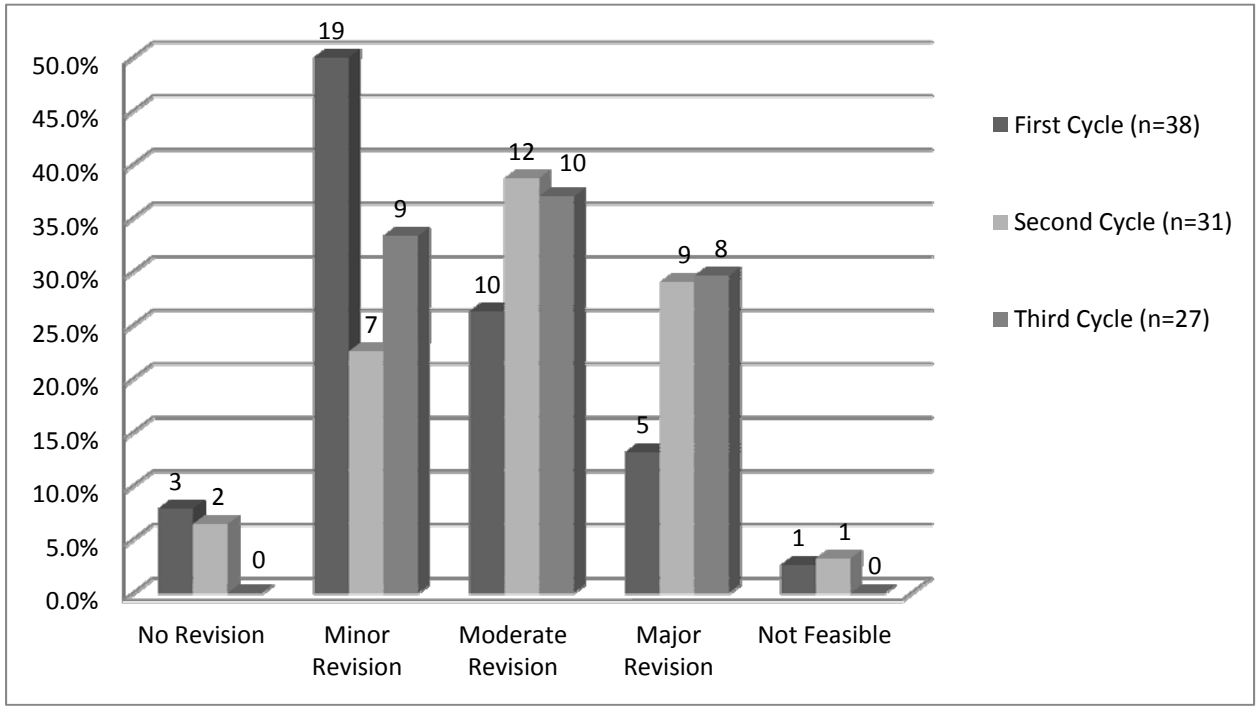
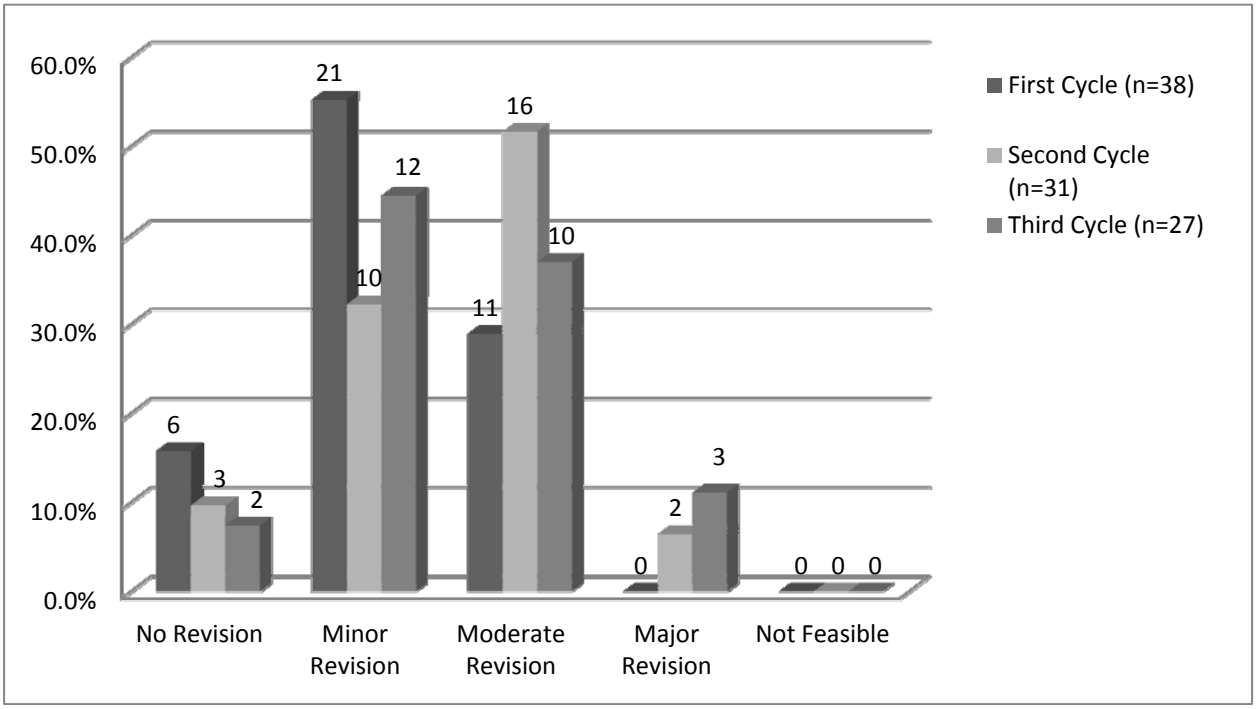


Figure 6. Final Review Scores for First (2002), Second (2007), and Third (2012) Cycle Distribution for the NP 101 Food Animal Production Panels (average score 5.8; 4.95; 5.0, respectively). The number of plans reviewed by each cycle is in parentheses. Number over columns are the actual number of plans receiving that score.



Panel Characteristics

ARS places responsibility for panel member selection primarily on external and independent Panel Chairs. ARS scientists, managers, and the Office of National Programs may recommend panelists but the Panel Chair is under no obligation to use these recommendations. Several factors such as qualification, diversity, and availability play a role in who is selected for an ARS peer review panel. The nine panels were composed of nationally and internationally recognized experts to review 27 projects primarily coded to the Food Animal Production Program (See Table 1, page 2). The information and charts below provide key characteristics of the Food Animal Production Panels. This information should be read in conjunction with the Panel Chair Statements.

Affiliations

Peer reviewers are affiliated with several types of institutions, especially universities, government, special interest groups, and industry. In some cases, peer reviewers have recently retired but are active as consultants, scientific editorial board members, and are members of professional societies. Also, several government-employed panelists are recognized for both their government affiliation and faculty ranking. Table 4 shows the faculty ranking of the Food Animal Production Panel members at the time of the review.

Table 4. Faculty Rank of Panelists Affiliated with Universities

Panel	Professor	Associate Professor	Assistant Professor
Panel 1 – Production Efficiency: Genetics & Genomics (3)	3		
Panel 2 – Genomic Selection: Genetics & Genomics (5)	5		
Panel 3 – Physiology: Genetics & Genomics(3)	1	1	1
Panel 4 – Genetic & Germplasm Technologies (4)	4		
Panel 5 – Nutritional Physiology: Ruminant Dairy (4)	2	2	
Panel 6 – Nutritional Physiology: Ruminant Beef & Non-Ruminant (4)	2	2	
Panel 7 – Reproductive Physiology (3)	1	2	
Panel 8 – Animal Welfare and Stress (6)	3	3	
Panel 9 – Meat Product Quality & Nutritional Value (3)	1	1	1

Accomplishments

The peer review process is intended to be rigorous and objective, striving for the highest possible scientific credibility. In general, panelists are expected

to hold a PhD unless the norm for their discipline tends to not require doctorate level education to achieve the highest recognition and qualification (e.g., engineers and modeling specialists). Panelists are also judged by their most recent professional accomplishments (e.g. awards and publications completed in the last five years). Finally, the panelists who are currently performing or leading research to address a problem similar to those addressed in the National Program are preferred. Table 5 describes their characteristics in the Food Animal Production Panels.

Table 5. The Panels' Recent Accomplishments

Panel	Published Articles Recently	Received Recent Professional Awards	Having Review Experience	Currently Performing Research
Panel 1 – Production Efficiency: Genetics & Genomics (3)	3	2	3	3
Panel 2 – Genomic Selection: Genetics & Genomics (5)	5	5	5	4
Panel 3 – Physiology: Genetics & Genomics (3)	3	2	3	3
Panel 4 – Genetic & Germplasm Technologies (4)	4	3	4	4
Panel 5 – Nutritional Physiology: Ruminant Dairy (4)	4	4	4	4
Panel 6 – Nutritional Physiology: Ruminant Beef & Non-Ruminant (4)*	3	1	3	3
Panel 7 – Reproductive Physiology (3)	3	3	3	3
Panel 8 – Animal Welfare and Stress (6)	6	5	6	6
Panel 9 – Meat Product Quality & Nutritional Value (3)	3	0	3	3

*Data not available.

Current and Previous ARS Employment

The Research Title of the 1995 Farm Bill 105-585, mandated ARS's requirements for the peer review of ARS research projects: 1) panel peer reviews of each research project were mandated at least every five years and 2) the majority of peer reviewers must be external (non-ARS scientists). Table 6 shows how many panelists were formerly employed by ARS.

Table 6. Affiliations with ARS

Panel	Formerly Employed by ARS
Panel 1 – Production Efficiency: Genetics & Genomics (3)	
Panel 2 – Genomic Selection: Genetics & Genomics (5)	
Panel 3 – Physiology: Genetics & Genomics(3)	1
Panel 4 – Genetic & Germplasm Technologies (4)	
Panel 5 – Nutritional Physiology: Ruminant Dairy (4)	1
Panel 6 – Nutritional Physiology: Ruminant Beef & Non-Ruminant (4)	
Panel 7 – Reproductive Physiology (3)	
Panel 8 – Animal Welfare and Stress (6)	1
Panel 9 – Meat Product Quality & Nutritional Value (3)	

Food Animal Production Panel Chairs

Keith Campbell, Ph.D., ARS Panel Chair

Panel 1 - Production Efficiency: Genetics and Genomics

Professor of Animal Development, Division of Animal Sciences, University of Nottingham, Leicestershire, United Kingdom

Education: B.Sc. Queen Elizabeth College; University of London; Ph.D. University of Sussex

Dr. Campbell was Professor of Animal Development at the University of Nottingham, School of Biosciences. Dr. Campbell played a huge part in the creation of the sheep, Dolly, the first cloned mammal. Dr. Campbell's research interests included embryology, biotechnology and cell biology.

Susan Lamont, Ph.D., ARS Panel Chair

Panel 2 - Genomic Selection: Genetics and Genomics

Charles F. Curtiss Distinguished Professor, Department of Animal Science, Iowa State University, Ames, Iowa

Education: B.S. Trinity Christian College, Ph.D. University of Illinois Medical Center

Dr. Lamont is the Charles F. Curtiss Distinguished Professor in Agriculture and Life Sciences and the Equity Advisor, College of Agriculture and Life Sciences at the Iowa State University. Her research interests include genomics, genetics, QTL, poultry and disease.

Clare Gill, Ph.D., ARS Panel Chair

Panel 3 - Physiology: Genetics and Genomics

Associate Professor, Department of Animal Science, Texas A&M University, College Station, Texas

Education: B.Biotech University of South Australia; Ph.D. University of Adelaide, Australia

Dr. Gill is an Associate Professor of Animal Genomics and Associate Vice President for Diversity at Texas A&M University. Her research interests include animal genomics and QTL mapping.

Jerry Dodgson, Ph.D., ARS Panel Chair

Panel 4 - Genetic and Germplasm Technologies

Professor and Chairperson, Department of Microbiology and Molecular Genetics, Michigan State University, East Lansing, Michigan

Education: B.S. Michigan State University; Ph.D. University of Wisconsin

Dr. Dodgson is the Associate Chairperson for Undergraduate Affairs, Department of Microbiology and Molecular Genetics at Michigan State University. His research interests include genomics, poultry, virology and transgenics.

Barry Bradford, Ph.D., ARS Panel Chair

Panel 5 – Nutritional Physiology: Ruminant Dairy

Associate Professor, Department of Animal Sciences, Kansas State University, Manhattan, Kansas

Education: B.S. Iowa State University; Ph.D. Michigan State University

Dr. Bradford is an Associate Professor of Animal Sciences and Industry and Kansas State University. His research interests include ruminant nutrition, physiology and endocrinology.

Gordon Carstens, Ph.D., ARS Panel Chair

Panel 6 – Nutritional Physiology: Ruminant Beef and Non-Ruminant

Associate Professor, Department of Animal Science, Texas A&M University, College Station, Texas

Education: B.S. Iowa State University; M.S.& Ph.D. Colorado State University

Dr. Carstens is an Associate Professor in the Department of Animal Sciences and Intercollegiate Faculty of Nutrition at Texas A&M University. His research interests include ruminant nutrition, nutrition physiology and energy metabolism.

William Flowers, Ph.D., ARS Panel Chair

Panel 7 – Reproductive Physiology

Alumni Distinguished Professor, Department of Animal Science, North Carolina State University, Raleigh, North Carolina

Education: B.S. Virginia Tech; M.S. & Ph.D. University of Missouri

Dr. Flowers is an Alumni Distinguished Professor of Animal Science and Physiology at the North Carolina State University. His research interests include swine, reproduction, spermatogenesis and folliculogenesis.

Janeen Salak-Johnson, Ph.D., ARS Panel Chair

Panel 8 – Animal Welfare and Stress

Associate Professor, Department of Animal Sciences University of Illinois, Urbana, Illinois

Education: B.S.; M.S. & Ph.D. Texas Tech University

Dr. Salak-Johnson is an Associate Professor in the Department of Animal Sciences at the University of Illinois. Her research interests include stress, immunology, animal well-being, physiology and behavior.

Steven Moeller, Ph.D., ARS Panel Chair

Panel 9 – Meat Product Quality and Nutritional Value

Associate Professor, Department of Animal Sciences, The Ohio State University, Columbus, Ohio

Education: B.S.; M.S. & Ph.D. Iowa State University

Dr. Moeller is a Professor in the Department of Animal Sciences and State Swine Extension Specialist at The Ohio State University. His research interests include meat quality, pork, beef, genetics, and management.

Panel Chair Statements

All Panel Chairs are required to turn in a statement that describes how their Panel was conducted and possibly provide comments on the review process that might not otherwise be found in the individual research project plan peer reviews. Panel Chairs are given some guidelines for writing their statements, but are nevertheless free to discuss what they believe is important for broad audiences.

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February 6, 2013

Dr. Joyce Loper, Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr. Loper,

In this letter, I offer my evaluative statement as the chair of the NP 101 Panel 2 "Genomic Selection: Genetics and Genomics". Given the rapidly emerging and changing fields encompassed in the projects reviewed by this panel, we were fortunate to form a panel that included some of the world experts in these research areas. It was clear that the reviewers spent extensive time in the process of carefully reviewing the projects, drafting their written reviews, and preparing for the discussion. Projects were discussed thoroughly, and panel members held high but fair standards for their evaluations. Because of their collective specific expertise, the panel was able to note issues with some of the projects and offer specific suggestions for improvements. They could also identify and comment on strengths and innovations that were included in the projects.

The time available to discuss each project (about ½-hour) was sufficient. As often happens, the first project discussed took a longer time, while the panel was learning the process of the review. There were a couple of hiccups in the logistics of getting all members into the review session, but not worse than typically happens in getting a new group signed into a session using a new technology. Keep at it – the web-based reviewed are so much more time-efficient than travelling to have a face-to-face panel meeting to review a small number of project. The smaller time commitment means that some very busy scientific experts are able to commit to participating in a panel in this format, when they might not be able to give 3 or 4 days away from their workplace for a face-to-face panel review.

The orientation material/session, and all materials provided to us in advance were excellent, as was the support of program staff throughout the review process. Questions and requests were addressed promptly.

One thing that was challenging for the panel members was remembering the different purpose of this review panel, as contrasted with panels to review competitive grants (a more typical panel service for most). The orientation materials and Dr. Strauss clearly addressed these differences,

and the panel members understood the differences, but the greater familiarity with other types of panels was difficult for panel members to completely overcome. The scoring system and the critique writing procedures were clear. It was evident in the discussion that the panel had some hesitation about recommending scores that would entail the project authors making a major revision of the project (as all panel members understood the amount of work that requires). However, the final outcome was that the panel members each committed to making the recommendation that best reflected their scientific expertise and their understanding of the scoring criteria for each project.

Exclusion of peer reviewers when they were in conflict with specific projects worked smoothly, as they could be contacted individually by email or cell phone to sign back into the discussion when appropriate.

The preparation of the compiled written critiques of the reviewers in advance of the panel meeting was an excellent and efficient approach to the review process. The ability for everyone to simultaneously view the changes being made as a result of the discussion, in real-time during the panel meeting, allowed us all to remain "on the same page" and to quickly move through the review process with a near-final version of the panel's consensus critique by the end of the panel meeting.

For improvements, based on the average time reported by members of this panel, I suggest that the orientation remarks to the panel members indicate that they should reserve at least 4 to 5 hours to thoroughly evaluate and prepare the written review for each project they are assigned.

In my assessment, this was a very effective and dedicated peer-review panel, which worked together toward the goal of contributing their expertise to evaluate and improve the scientific research to be conducted in the reviewed projects; additionally, the guidance, organization and support provided by ARS for this panel's activities were outstanding. I was pleased to work with this panel and the ARS staff in conducting this review.

Sincerely,

S. Lamont

Susan J. Lamont, Ph.D.
C.F. Curtiss Distinguished Professor of Agriculture and Life Sciences

AgriLIFE RESEARCH & EXTENSION
Texas A&M System

TEXAS A&M UNIVERSITY
COLLEGE OF AGRICULTURE AND LIFE SCIENCES
DEPARTMENT OF ANIMAL SCIENCE
ANIMAL GENOMICS LABORATORY

June 22, 2012

Dr. Joyce Loper, Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr. Loper,

Thank you for the opportunity to chair the review for NP101 – Panel 3. It is my opinion that the reviewers for this panel completed thorough, sound and credible scientific reviews of the two project plans. There were certainly interesting ideas and alternative approaches proposed by the reviewers that will strengthen both plans.

In terms of the discussion process about equal time was spent on both project plans. The reviewers had clearly prepared for the panel session. As a panel, we all appreciated receiving the plans well in advance (about 1 month) to allow us adequate time to reflect on the content of the plans. The web interface for these reviews is very convenient.

One suggestion for improvement that we discussed is to include, in the introductory web session on the OSQR process, a slide explaining that ARS scientists are encouraged to seek competitive funds to supplement their proposed activities and to emphasize these should not be duplicative. I think this would alleviate some of the discomfort of reviewers who serve on both OSQR and NIFA panels who may see proposals from the same research group.

Overall, I believe that this was an effective peer review panel. I enjoyed the opportunity to participate.

Kind regards,

Clare A. Gill, Ph.D.
Associate Professor, Animal Genomics

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October 18, 2012

Dr. Joyce Loper, Scientific Quality Review Officer
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5601 Sunnyside Avenue, MS 5142
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re: **NP101 Panel 4**

Dear Dr. Loper:

This is the Panel Chair Statement to summarize my impressions after serving as Panel Chair of the NP101 Panel 4 Genetic and Germplasm Technologies Panel Review (2012). As you know, we reviewed three projects, one of which was recommended for a Major Revision and thus was reviewed a second time after that revision. I feel that the panel provided a very thorough and insightful review for each of the projects. Many suggestions were made for both technical and programmatic changes. Several significant problems were identified for each project and alternative approaches were suggested by panel reviewers. While I can't be sure to what extent these suggestions were incorporated into the projects for which minor revisions were required, I am hopeful that they proved useful. Clearly, the panel's recommendations contributed extensively to changes made to the one project for which a major revision was required. While not all of the changes we suggested were found to be feasible by the leaders of that project, I feel that substantial improvements were made based on the panel input.

Several general aspects of the process deserve comment. First, although the three projects had some overlapping aspects, each was both complex and distinct from the others. This made it somewhat challenging to address them fully with a panel of only three reviewers, but I thought our panel members did an excellent job of complementing each other's respective areas of expertise. Even the third reviewer who was not assigned to a given project provided valuable input when that project was discussed. I feel that adequate time and thought went into the discussion of each project, and the final outcomes were fair and valuable. Hopefully, the ARS P.I.s feel likewise. Dr. Strauss was very helpful to me as Chairperson and to the Panel in general. I thought the process went smoothly overall, despite a few computer glitches along the way. While doing the job online precludes face to face interaction that can often be beneficial in a review process, it certainly is the most economical approach for both ARS and the reviewers' time. I strongly doubt that I could have recruited such highly qualified reviewers had I needed to ask them to travel to Washington, or any other location, to review only three projects. Similarly, scoring and critique writing were handled in an efficient and, I believe, fair manner.

It's always a bit of a challenge for the panelists to review projects in which the experimental plans are decoupled from the budget (and to some extent personnel) assignment process, as occurs for the ARS OSCR program. We

are used to viewing proposals in the context of what is feasible and appropriate for a given budget and/or commenting on what aspects of a proposal should have budgetary priority. However, I felt that our panel did a reasonable job of addressing the scientific requirements for each subproject and providing commentary on which were likely to be most significant, so that we could leave it to ARS scientists and staff to prioritize appropriately. The most specific example of this problem was that the project that went through a major revision in its second review no longer included a to-be-named scientist described in the first version without significantly reducing the scientific goals.

In summary, I think our Panel was quite effective, and that we provided valuable input to the ARS scientists involved. Obviously, I can't judge how they view the process, but I hope we provided useful technical suggestions and new perspectives that will benefit their research. Thanks again to Dr. Strauss and the OSCR office for all their help in the review process.

Sincerely,

Jerry Dodgson,
Professor

KANSAS STATE UNIVERSITY

July 13, 2012

Dr. Joyce Loper, Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr. Loper,

I served as the panel chair for NP 101 Panel 5, focused on Nutritional Physiology: Ruminant Dairy. This panel reviewed 3 projects and we conducted our online panel meeting on June 28.

The panel that I recruited needed to be able to cover a range of topics, from dietary forage characteristics to animal genomics, microbial metagenomics, and gut physiology, although all of these projects were focused on dairy cattle. This scientific breadth made it a bit difficult for all panel members to get their arms around all of the principles reflected in the projects, but we had an adequate diversity of panelists that I believe we, as a team, provided a very sound scientific review of the projects. Having served on grant panels where the attention of the reviewers is divided across a large number of proposals, I was impressed with the depth of thought that went into these 3 reviews. Most of the suggestions for project improvement were creative ideas for getting more information out of the planned work rather than veiled criticism of the project plans. I believe the panel's comments were particularly effective at identifying areas where the planned research carried the risk of being obsolete or out of touch with industry practices.

The process, including the number of projects each panelist was asked to review as well as the opportunity to meet online, was quite reasonable in terms of the time commitment required from panelists. I believe that most of us, given our experiences in reviewing competitive extramural grant proposals, did struggle a bit with the differences in perspective necessary to review the ARS project plans. However, I give a lot of credit to those who put together orientation information for the panel, as these differences were highlighted multiple times and the expectations and administrative nuances of ARS research were very clearly laid out. Despite these efforts, we did spend some time in the panel meeting discussing concerns about the cohesiveness of various aims within a project, before reviewing the fact that these aims, in many cases, are tacked on out of necessity within the ARS. I also believe that the template provided for reviewers makes the reviews much more consistent and eliminates the need for a reviewer to stop and consider how to format a review. Overall, I was very pleased with the process and have few suggestions for improving reviews.

One minor suggestion is to have a bit more communication between the panel chair and administrative staff at ARS helping with logistics. Although assistance with scheduling is much appreciated, when I was recruiting panelists, I received some feedback from them about when they would or would not be available. I did not have an opportunity to share this information with the individual who was tasked

with scheduling orientation and the panel meeting, resulting in a round of emails that would have been unnecessary if a quick email or phone exchange with me had occurred first. Again, this is a very minor thing but may save some hassle in the future.

Overall, I think this was a very effective review process. I wish that all review panels had the opportunity to look closely at a reasonable number of projects like we did in this case!

Sincerely,

Barry Bradford
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AgriLIFE RESEARCH
Texas A&M System

TEXAS A&M UNIVERSITY

COLLEGE OF AGRICULTURE
AND LIFE SCIENCES
Department of Animal Science

September 4, 2012

Dr. Joyce Loper, Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr. Loper:

The purpose of this memorandum is to report on the outcomes of a review panel that was assembled earlier this summer to evaluate 4 project plans in the Agricultural Research Service's Animal Production National Program. These plans were centered on prospective research by ARS scientists working in the areas of *Nutritional Physiology of Ruminant Beef and Non Ruminants*. Our review panel consisted of 4 panel members with expertise in ruminant nutrition, forage physiology, non-ruminant nutrition and reproductive physiology, and with experience in conducting research in large- and small-ruminant, and poultry species. In addition to providing written summaries of the project plans, our review panel met online to discuss the scientific merits, and the strengths and weaknesses of the research objectives stated for each of the project plans. Following the summary presentations by primary and secondary reviewers for each project plan, specific comments from all review-panel members were discussed prior to scoring each plan. Additionally, for each of the project plans, comments were summarized to provide feedback to the scientists for the prospects of improving the quality and merit of their proposed studies.

The members of this review panel, in my opinion, represented a good balance of disciplines to fully evaluate the multidisciplinary scope of the 4 project plans. Furthermore, following extensive discussions for each project plan, the review panel reached near consensus in scoring, and providing summary critiques of the projects. All panel members, including myself, agreed that the review process went well, and provided adequate opportunities for each panel member to evaluate the merits and weaknesses of the projects to their fullest degree. The online format of the discussion was good, with several of the review panel members commenting that this format was a much more efficient use of time due to lack of travel required. The online sessions with staff members from the Office of Scientific Quality Review served us well to more fully understand the review process and specific procedures to follow in scoring and critiquing the project plans.

In summary, I believe this was a very effective peer-review panel that was able to render objective evaluations of each of the project plans.

Sincerely yours,

Gordon E. Carstens, PhD, PAS
Associate Professor
Department of Animal Science

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June 26, 2012

Dr. Joyce Loper, Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr. Loper:

The NP 101 Panel 7 – Reproductive Physiology met this morning to discuss two research plans addressing important issues facing the swine and beef industries. In my opinion, the two research plans underwent an extensive and critical review by the panel. The panel provided excellent guidance with regards to alternative approaches; incorporation of additional treatments, in some cases; collection of additional data, in others; and refinement of some objectives for both plans. In one case, suggestions were made based on recent unpublished data that USDA-ARS scientists probably wouldn't have been privy to as they prepared their 5-year plans. In others, the panel applauded the use of the unique resources that each of the research groups has available to them at the U.S. Meat Animal Research Center and encouraged them to extend their studies into areas in which they most likely are the only groups currently in the U.S. that could do so. I have served on several review panels for both extramural and intramural national research programs for the USDA over the years and I thought the discussion during our recent NP 101 Panel 7 meeting was one of the better ones in terms of its thoroughness, rigor, and candidness.

The logistics of the review process were outstanding. The panel definitely came prepared to have an open and honest discussion with regards to the merits of each research plan. The members from the Office of Scientific Quality Review were very accommodating and provided excellent guidance in terms of making sure that everyone understood what constituted a conflict of interest. Originally, it appeared that one of the panel members might have a conflict, but upon further review and with their guidance, it became apparent that none existed. The entire Panel felt that the on-line review format was excellent. Those that have served on previous panels unanimously agreed that this approach is far superior to earlier ones that involved travel for a number of reasons. One of the distinct advantages was that all the panel members could see the exact language that was inserted into the review documents as it was being entered and comment on whether it truly captured the essence of their comments. To coin a popular phrase, it really was a review in "real-time" which is what I think most agencies strive for.

The panel was very pleased with the review process and really had very few suggestions for improvement. One of the research plans that the panel evaluated included a flow diagram that illustrated beautifully interactions among all the participants, including collaborators for each objective. All the panel members commented that this made review of the research plan including assessment of all the interactions among various laboratories

very easy. Since many of the research plans include intramural and extramural collaborations which, at times, can become quite complex, the panel felt that inclusion of flow diagrams for all plans would be one area that would greatly facilitate the review process. It is my personal opinion that it would also help scientists better visualize all the components of a research plan; strengthen existing collaborations that are already operational; and help foster the development of new ones.

The panel members also thought that the USDA could do more to publicize the thoroughness, rigor, and success of their review process for intramural research programs, such as these. Many organizations summarize the results of their funding programs by publishing annually data with regards to number of submissions, number funded, number requiring major, moderate, and minor modifications, etc. I believe that the Office of Scientific Quality Review already does this. The panel members felt that if this was summarized and made available to the general public, if it is not already being done, then this would be a very useful endeavor and provide useful data for key stakeholder groups.

In summary, the NP 101 Panel 7 – Reproductive Physiology was an effective review panel. Suggestions made by the panel were insightful and will help improve the quality and impact of the research planned in these areas. If I can provide further information, then please do not hesitate to contact me (phone: 919/515-4003; email: william_flowers@ncsu.edu).

With kindest regards,

W.L. Flowers
Alumni Distinguished Professor
Animal Science and Physiology

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Panel Chair Statement
Date: November 14, 2012

Addressed to:
Dr. Joyce Loper, Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr. Loper,

As the chair of *Panel 8: Animal Welfare and Stress* I have provided my written chair statement to reflect the questions proposed by you. My responses to your questions (although not numbered) are in order of the questions that were proposed.

Overall, our panel discussion reflected a very sound and credible scientific peer review process for the research plans submitted to this panel. All the members of the panel especially the primary and secondary reviewers assigned to specific research plans were chosen because their areas of expertise or scientific knowledge coincided with the primary research focus of each research plan. All of these scientists provided complete and quality review assessments of each research plan assigned to them and often provided more input once a particular plan was opened for general discussion. Their reviews provided credible and scientifically sound critiques and often times made suggestions for alternative approaches and provided additional measurements or information that improved the quality of the research plan. Moreover, many of the reviewers pointed out flaws in experimental design or analysis and provided alternative methodology that would improve the research plan. Several of the researchers implemented these suggested and during the re-review process it was apparent that it did improve the quality of their research plan, others choose to dismiss the suggestions and or alternatives which was also apparent during the re-review process. This approach was perceived negatively by the scientist that made the suggestions and hence their revised plan was not viewed favorably. None of the reviewers of the research plans expects a fellow scientist to make every change they suggest but if a researcher chooses not to make a change they should be able to defend with sound science and/or soundly justify their rationale, but to simply dismiss their colleagues is not perceived favorably.

Overall the discussion process was positive and productive with one exception—the summary of the research plans by the primary reviewer needs to be more structured, if you will. Some of the

primary (and even secondary) reviews were not effective because of the lack structure and not being concise. Moreover, I think excluding peer reviewers that have a conflict with the research plan is not always a good idea because they are most often the expert and they can provide valuable information. I understand that there are different levels of conflict but I think even if the person is a collaborator they can still play a positive role in the process, sometimes our colleagues tend to be our biggest critics. I don't think this is a problem for these Panel Reviews because it seems that these groups don't collaborate much outside of the ARS group and none of my panel reviewers are part of the ARS groups.

Suggestions for improving the peer review process are stated previously—find a more structured approach via the webinar to have the primary and secondary reviewers more concisely present the research plans; and reconsider valuable experts to be able to provide input during the review process.

I do believe that this was an effective peer review panel because all of these individuals are well respected in their areas of research and they really are very credible and sound scientist. Some reviewers were more effective than others because they not only scientifically assessed the project plan but they made very credible and sound suggestions that helped make the research plans better.

Janeen L. Salak-Johnson, PhD
Associate Professor of Stress Physiology and Well-being

THE OHIO STATE UNIVERSITY DEPARTMENT OF ANIMAL SCIENCES

08/28/12

Dr. Joyce Loper, Scientific Quality Review Officer
Office of Scientific Quality Review
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1. The reviewers provided succinct scientific review of the materials provided via the ARS project leaders. The review process and feedback provided in writing and in the group discussion of the specific projects were, in my opinion, very thorough and professionally prepared. Reviewers for these projects were critical where needed; yet offered alternative suggestions for improvement rather than simply tearing down a research objective(s). The value in the process was that the review team had strong practical and applied research backgrounds as well as familiarity with both proposal focal areas. Based on the process that was outlined by ARS. I feel confident that the outcome of the review will be used to improve the research proposed either in the original form or through the modifications suggested by the panel.

2. What were the most notable (positive or negative) characteristics of the discussion process and why:

The process of review was very straightforward and scheduled very tightly to keep the review process moving and timely. The communications between reviewers and ARS personnel worked very effectively and the individuals responsible for oversight at the ARS level were very professional.

A challenge as the chair was the ability to find reviewers without a perceived conflict of interest (at least based on the exclusion list of previous potential contacts with proposal authors). I suspect this will continue to be an issue and may even be a greater issue in the future as the number of scientists shrinks on a national level, while the focus of much new ARS and University research is being driven by multi-state, multi-agency collaborations. We may be our own worst enemy. A partial solution may be to do blind reviews by removal of names, associations, and where possible indications that give hint to the scientist involved. Not an easy answer to this situation.

3. What suggestions do you have to improve the peer review process?
Peer-review is still extremely important to agricultural research investment. Exclusion of key scientists due to past collaborations may hamper the ability to obtain a strong review potentially leading to research that may not have the impact proposed. Simply looking for non-associations as a means to conduct reviews may lead ARS scientists down a path whereby funding is not being used to promote strong science in critical areas. Ethical scientists can evaluate research of

colleagues if given the assurance that their reviews are maintained anonymous. Maybe the extent of dissociation can have a time frame attached to it (e.g. past 5 years) a tie to published research (e.g. no co-authorship on peer-reviewed manuscripts for a time period) or no joint grant funding (e.g. past xx years). The key, in my opinion, is that scientists need to talk, discuss, plan with many people in their respective fields of study; activities that preclude them from reviewing scientific processes. I do not have a definitive answer, rather offer these sentences as food for thought.

4. Overall, was this an effective peer review panel?
Quite good. In this particular case, the ability to find two strong reviewers to conduct reviews on somewhat diverse subject areas was a bonus. Finding these two reviewers took time, a commodity many individuals (colleagues, etc) have less of today.

Thank you,

Steven J. Moeller
Professor
Department of Animal Sciences
The Ohio State University

Projects Reviewed by the Food Animal Production Panels

Beltsville Area

Erin Connor

Understanding Genetic and Physiological Factors Affecting Nutrient Use Efficiency of Dairy Cattle

David Donovan

Developing Genetic Biotechnologies for Increased Food Animal Production, Including Novel Antimicrobials for Improved Health and Product Safety

Julie Long

Development of New Technologies and Methods to Enhance the Utilization and Long-Term Storage of Poultry, Swine and Fish Gametes and Embryos

Timothy Ramsay

Identification of Biomarkers for Pre and Post Weaning Growth in Swine

Tad Sonstegard

Enhancing Genetic Merit of Ruminants through Genome Selection and Analysis

Paul VanRaden

Improving Genetic Predictions in Dairy Animals Using Phenotypic and Genomic Information

Midwest Area

Hans Cheng

Employing Genomics, Epigenetics, and Immunogenetics to Control Diseases Induced by Avian Tumor Viruses

Susan Eicher

Enhancing the Gastrointestinal Microbial and Immune Functions of Farm Animals to Promote Well-Being and Production

Mary Beth Hall

Determining Influence of Microbial, Feed, and Animal Factors on Efficiency of Nutrient Utilization and Performance in Lactating Dairy Cows

Donald Lay, Jr.

Safeguarding Well-Being of Food Producing Animals

Richard Muck

Forage Characteristics that Alter Feed Utilization, Manure Characteristics and Environmental Impacts of Dairy Production

Mid South Area

Glen Aiken

Optimizing the Biology of the Animal-Plant Interface for Improved Sustainability of Forage-Based Animal Enterprises

Joseph Purswell

Improving Efficiency of Growth and Nutrient Utilization in Heavy Broilers Using Alternative Feed Ingredients

Joseph Purswell

Optimizing Heavy Broiler Management and Housing Environment for Sustainable Production

Pacific West Area

Gregory Lewis

Improving the Efficiency of Sheep Production in Western Rangeland Production Systems

Northern Plains Area

Harvey Blackburn
National Animal Germplasm Program

Tami Brown Brandl
Precision Animal Management for Improved Animal Well-Being

Robert Cushman
Strategies to Improve Heifer Selection and Heifer Development

Harvey Freetly
Improved Nutrient Efficiency of Beef Cattle and Swine

Kreg Leymaster
Genetic Research to Enhance Efficient and Sustainable Production of Beef Cattle and Sheep

Andrew Roberts
Alleviating Rate Limiting Factors that Compromise Beef Production Efficiency

Gary Rohrer
Genomic Approaches to Enhance Swine Production and Product Quality

Timothy Smith
Genomic and Metagenomic Approaches to Enhance Efficient and Sustainable Production of Beef Cattle

Jeffrey Vallet
Improving Sow Lifetime Productivity in Swine

Tommy Wheeler
Strategies to Optimize Meat Quality and Composition of Red Meat Animals

Southern Plains Areas

Jeffery Carroll

Improving Immunity, Health, and Well-Being in Cattle and Swine

Sam Coleman

Improving the Efficiency and Sustainability of Diversified Forage-Based Livestock Production Systems

Office of Scientific Quality Review

The Office of Scientific Quality Review (OSQR) manages and implements the ARS peer review system for research projects, including peer review policies, processes and procedures. OSQR centrally coordinates and conducts panel peer reviews for project plans within ARS' National Programs every five years.

OSQR sets the schedule of National Program review session. The OSQR Team is responsible for:

- Panel organization and composition (number of panels and the scientific disciplines needed)
- Distribution of project plans
- Reviewer instruction and panel orientation
- The distribution of review results in ARS
- Notification to panelists of the Agency response to review recommendations
- *Ad hoc* or re-review of project plans

Contact

Send all questions or comments about this Report to:

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