

National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board

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Evaluation of the Peer Review Process for the Agricultural Research Service National Research Programs

March 2009

Executive Summary. The review system implemented by the United States Department of Agriculture's Agricultural Research Service (ARS) is effective in judging the quality of the research and also provides significant comments to the project leaders that should lead to more productive research efforts. The following statements summarize our report.

1. Members of the National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board Review Panel as well as project reviewers selected by Office of Scientific Quality Review (OSQR-USDA) noted that project materials presented by research project leaders for review were of high quality. Project reviewers that had conducted earlier reviews for OSQR-ARS commented that written materials submitted for their review were of high quality and that quality of the written materials had improved.
2. The Review Panel noted that the quality and stature of reviewers selected by the OSQR-USDA were recognized as being in the top of their subject matter area's peer group.
3. The Review Panel wants to go on record that OSQR and ARS leadership need to continue to work to promote creativity in the research plans of their scientists. Peer review, in general, can often result in harsher review of projects that take creative or "outside the box" approaches. ARS and OSQR need to be proactive in countering this.
4. All reviewers, in the Review Panel's judgment, were well qualified to judge projects for their productivity and scientific quality. Review panels, in keeping with the original legislation, were dominated by university professors but one or more of the scientist's were from industry or non-governmental laboratories.
5. The one deficiency noted by this Review Panel was the public's lack of knowledge about the quality and importance of the science being conducted by ARS scientists. Therefore, the committee recommends that both ARS and USDA give more attention

to selectively publishing significant research results, particularly those that have public impact and interest.

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I. Review Procedure

The National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board is charged by statute with evaluating the research project review procedure implemented by the Agricultural Research Service of USDA and must provide a report to the Secretary of Agriculture and Congress with its evaluation. ARS established the Office of Scientific Quality Review (OSQR) to conduct research project reviews every 4 years. This Review Panel attended several OSQR research project reviews. Information from these reviews is the basis for our report.

1. Review Panel members were briefed by Thomas (Ed) Cleveland, Scientific Quality Review Officer, and Michael Strauss, Peer Review Coordinator of OSQR on July 9, 2009.
2. Review Panel members attended the following Peer Review sessions scheduled by OSQR.
 - a. August 2008 – Martin Apple attended the review of Pasture, Forage and Rangeland Systems projects.
 - b. September 5, 2008 – the entire NAREEE Review Panel participated in the on-line review of Perennial Crop projects.
 - c. November 20 & 21, 2008 – Ed Runge attended the review of Dietary Patterns projects.
 - d. December 4 & 5, 2008 – Joe Layton attended the review on Obesity and Metabolism projects.
 - e. Except for the on-line review, all reviews were held at the OSQR office in Beltsville, Maryland.

3. Directions, materials, and logistics provided by OSQR were well received by the scientific review panels and the NAREEE Advisory Board Review Panel.

II. Review of the last NAREEE Advisory Board Review Panel Report on the Peer Review Process dated April 7, 2004 and Recommendations of the 2009 Review Panel.

The 2009 Review Panel reviewed the previous **NAREEE Advisory Board Review Panel Report on the Peer Review Process for ARS National Research Programs**. NAREEE's Peer Review Report dated April 7, 2004, recommendations are listed along with this Task Force's comments and recommendations –

1. ARS options for an External Advisory Group – 2004 Review Panel Recommendation: We recommend that a Review Panel of the NAREEE Board provide oversight to the ARS Peer Review Process.

2009 NAREEE Review Panel Recommendation: We concur with this recommendation and make it part of our report.

2. Development of Explicit Criteria for Selection of Review Panels and Chairs – 2004 Review Panel Recommendation: We recommend that an effort be made to increase industry and other agency representation and input on future ARS Review Panels.

2009 NAREEE Review Panel Recommendation: We concur and recommend that OSQR continue the present practice to expand industry and/or foundation scientists on review panels when qualified scientists can be identified.

3. Short Courses and/or Workshops on Proposal Preparation – 2004 Recommendation: We recommend that ARS consider in-depth regional workshops to assist researchers with improving project preparation skills as has been suggested earlier. In addition, we understand that “Guidelines for Preparation of ARS Projects” is under revision. We recommend that these guidelines be prepared in depth, and with examples of excellent and poor project preparation. In addition, this material should be web-based for easy reference and access. Whenever possible, we suggest that ARS utilize those researchers who have demonstrated and proven to be adept at proposal preparation as a component part of any workshop effort.

2009 Review Panel Comment - We congratulate OSQR on its efforts in this area since the last Review Panel report. The Review Panel members were pleased to learn that project proposal preparation is no longer a major problem as a result of OSQR and ARS' efforts. In fact the number of

projects judged by the review panels as needing **major revision** or **not feasible** has decreased.

2009 NAREEE Review Panel Recommendation: We concur with this recommendation and note that no corrective action is needed. However, OSQR and ARS should continue efforts to help researchers write better project proposals as they have done since the 2004 Review Panel report.

4. Future Advisory Board Opportunities to Observe the Review Process – 2004 Review Panel Recommendation: After observing the panels in action, we recommend that members of the NAREEE Advisory Board make the effort to observe the process first hand.

2009 Review Panel Comment - Observing the process first hand is the only way to judge the quality of the review and the role that OSQR plays in these reviews.

2009 NAREEE Review Panel Recommendation: We concur that NAREEE Advisory Board members continue to observe project review panels in action.

5. Potential Modification of the Review Process – 2004 Review Panel Recommendation. We recommend that as the current cycle of reviews is completed, that a process of documenting the impacts of the review process on research productivity, quality, direction, and competitiveness. We understand that this is likely to be a difficult process, and suggest at a minimum, a survey of scientists, administrators, industry, panelists, and other stakeholders to attempt to answer some of the questions stated above. These questions are as follows;

- How has ARS research been improved by the peer review process?
- Has the peer review process helped ARS assure that its research programs are addressing “cutting edge” issues?
- Are ARS scientists more productive?
- Is ARS better positioned to conduit and achieve its goal of mission-oriented research?
- As a result of this peer review process, are ARS scientists more competitive for extramural funding to expand and extend their research?
- Has ARS enhanced its technology transfer via CRADAs and other means?
- Has the external awareness in the quality of ARS research changed as a result of the scrutiny of a peer review process?
- (Added by 2009 Review Panel) How does ARS administration encourage research scientists to push back the frontiers of knowledge by conducting research that has the potential to

2009 NAREEE Review Panel Comment - Various members from this Review Panel were assured that ARS had addressed all the questions posed by the prior 2004 NAREEE Review Panel report. This Review Panel was instructed by conference call and orally about the many improvements that had occurred as a result of the questions listed above.

This NAREEE Advisory Board Review Panel is concerned that review procedures do not suppress creativity of ARS's scientists. We agree that scientist's ability to conduct risky research must be encouraged by administration, review procedures and guidelines in project preparation. Standardization of the review process must be balanced by encouraging scientists to also conduct research that to some might appear as risky.

2009 NAREEE Review Panel Recommendation: We recommend that ARS scientists be encouraged to advance scientific knowledge by formulating project objectives that may be perceived to some administrators and reviewers as "*risky*." Cutting edge research is fraught with considerable risk but such risk-taking is essential to advance knowledge. We have added to the list above a new item for consideration in the future – "**How does ARS administration encourage research scientists to push back the frontiers of knowledge by conducting research that has the potential to advance science but also may fail and may appear to some as risky?**"

6. 2004 Review Panel Recommendation: We also recommend that as this cycle of peer review is completed, ARS use the impact information from the peer review process as stakeholder input in its re-evaluation of the 22 priority research programs.

2009 Review Panel Comment: The public's awareness of the excellence of ARS research and how it serves the public will always be a concern. Publicizing research results must be done selectively; however, this Review Panel encourages ARS to strengthen efforts to make policy makers and the general public more aware of how their research efforts serve the public interest.

2009 NAREEE Review Panel Recommendation: We recommend that ARS greatly expand public relations efforts to **selectively publicize** research finding of its scientists.

III. Summary

This Review Panel thanks the OSQR office for their briefing and for responding to questions, for request for information, and for all logistical assistance. The briefing by OSQR was thorough and provided committee members with information needed before attending reviews that formed the basis for our report. The reviewers operated under these guidelines.

1. Is the review thorough and complete? **Review Panel answer is Yes.**
2. Were reviewers pleased with the materials presented and did they accurately represent the quality of the research under review? (Project leaders being reviewed are not present at the review. Therefore materials prepared by project leaders for review must represent the projects fairly and accurately). **Review Panel answer is Yes.**
3. Is the quality of the research being reviewed up to high standards expected by the scientific community? **Review Panel answer is Yes.**
4. Are reviewers recommendations appropriate and are they helpful in furthering the research success of project leaders being reviewed? **Review Panel answer is Yes.**
5. Many projects being reviewed are mandated by congressional directive. **Review Panel Comment:** This is to be expected when an agency like ARS is mandated to conduct many mission oriented research programs.

NAREEE Advisory Board Review Panel Members

E.C.A. Runge, Chair

Marty Apple

Joseph Layton

Robin Douthitt