

# **1. Introduction**

## **The Agricultural Research Service**

ARS is the U.S. scientific research agency responsible for solving agricultural problems of national importance. ARS research develops solutions to a wide range of problems related to food and agriculture—problems requiring long-term commitment of resources and problems unlikely to have solutions with the quick commercial benefits that would convince private industry to do the research. These problems range from protecting crops and livestock from costly pests and diseases to improving quality and safety of agricultural commodities and products, determining the best nutrition for humans from infancy to old age, sustaining natural resources, and ensuring profitability for producers and processors while keeping costs down for consumers. In addition to serving this broad range of customers, ARS provides research to support Federal action and regulatory agencies.

The Agency's researchers work at about 100 locations nationwide and a few key sites overseas. ARS employs about 7,000 people; 2,000 of them are scientists.

In addition to carrying out its research, ARS transfers the resulting technology to intermediate and end users and otherwise communicates the information gained through its research. This technology transfer and information dissemination is carried out by all ARS employees with the help and guidance of the National Agricultural Library, the Office of Technology Transfer, and the Information Staff.

## **The ARS Research Programs and Research Activities**

The ARS is the principal in-house research agency of the U.S. Department of Agriculture (USDA). It is one of four agencies of the Research, Education, and Economics (REE) mission area. ARS is charged with extending the nation's scientific knowledge and providing science-based solutions to problems across a broad range of program areas in animal and plant health and production systems and natural resource systems.

The ARS conducts mission-driven, intramural basic and applied research to solve priority agricultural and human nutrition problems. Also, ARS conducts mission-related research authorized by Congress in the Research Title of the United States Farm Bill. ARS works collaboratively with industry, the public, and academic stakeholders and customers to develop research objectives to meet national research needs while addressing mission requirements and congressional directions.

The ARS Administrator ensures that needed National Program Action Plans are updated at least every five years and implemented (*Agricultural Research Service's Strategic Plan*, USDA; April 1999). National Program Action Plans are developed through workshops and are published for public comment and information. The workshops result in Action Plans based on input from customers and stakeholders and provide a framework and sound foundation for:

- Coordinating and integrating research across ARS National Programs and Areas to ensure effective teamwork and to minimize duplication.
- Coordinating ARS National Programs with progress of other research institutions, such as State agricultural experiment stations and industry, to ensure that efforts are efficient and complementary.
- Ensuring that problems are addressed by the most appropriate means in terms of key scientific disciplines, teamwork, and technical approach.
- Reviewing and evaluating progress towards achievement of the objectives.

Each ARS research project is coded to one National Program to document that more than 50% of its activities are done to help solve problems in that National Program. The 22 National Programs are distributed among three groups:

Animal Production, Product Value, and Safety (NP 100 Series)

ARS seeks to enhance the production, value, and safety of foods and other products derived from animals which have a major impact on the American economy, world markets, and the U.S. balance of trade. The ARS scientific Program in Animal Production, Product Value, and Safety conducts multi-disciplinary research to solve problems of high national priority that threaten the security, safety, and productivity of U.S. agriculture and those arising from the interaction between animal and crop production and sustainable agricultural systems. In the area of human nutrition, foods from animals are a major contributor of energy and vital nutrients in the diets of Americans. ARS collaborates with public, private, academic, and foreign research entities to increase animal production and improve product quality and safety. Through these efforts, the United States can preserve its preeminent role as food provider to the world and overcome artificial trade barriers in world markets. The 100 series National Programs are:

- 101 Food Animal Production
- 103 Animal Health
- 104 Arthropod Pests of Animals & Humans
- 105 Animal Well-Being & Stress Control System
- 106 Aquaculture
- 107 Human Nutrition
- 108 Food Safety

### Natural Resources and Sustainable Agricultural Systems (NP 200 Series)

ARS seeks to enhance the quality of the environment through better understanding of, and building on, agriculture's complex links with soil, water, air, and biotic resources. The scientific Program in Natural Resources and Sustainable Agricultural Systems conducts multi-disciplinary research to solve problems arising from interactions between agriculture and the environment. New practices and technologies will be developed to conserve the Nation's natural resource base and balance production efficiency and environmental quality. ARS collaborates with foreign research entities to address global environmental quality problems. The 200 series National Programs are:

- 201 Water Quality & Management
- 202 Soil Resource Management
- 203 Air Quality
- 204 Global Change
- 205 Rangeland, Pasture and Forages
- 206 Manure and Byproduct Utilization
- 207 Integrated Farming Systems

### Crop Production, Product Value, and Safety (NP 300 Series)

ARS seeks to enhance the production, value, and safety of foods and other products derived from plants which have a major impact on the American economy, world markets, and the U.S. balance of trade. The ARS scientific Program in Crop Production, Product Value, and Safety consists of multi-disciplinary research to solve problems of high national priority that threaten the security, safety, and productivity of U.S. agriculture. In the area of human nutrition, foods from plants are a major contributor of vital nutrients and fiber in the diets of Americans. ARS collaborates with public, private, academic, and foreign research entities to increase crop production and improve product quality and safety. The 300 series National Programs are:

- 301 Plant, Microbial, & Insect Genetic Resources, Genomics & Genetic Improvement
- 302 Plant Biological & Molecular Processes
- 303 Plant Diseases
- 304 Crop Protection & Quarantine
- 305 Crop Production
- 306 New Uses, Quality, & Marketability of Plant & Animal Products
- 307 Bioenergy & Energy Alternatives
- 308 Methyl Bromide Alternatives

## **1999 Revision of ARS Peer Review Process**

The Peer Review Process is the framework for assessing a research project plan by independent expert reviewers for scientific and technical quality and for suitability of approach to achieve stated National Program objectives. Prior to 1999, peer review was conducted by having each plan evaluated by three or more expert ARS or non-ARS ad hoc reviewers. Since this process was administered at the Area Office level as projects were initiated or renewed, reviews of project plans were not uniform in procedures or quality and were not coordinated by scientific discipline across the Agency. (See Exhibit 1: Improving Research Through Peer Review.)

The Research Title of the 1998 Farm Bill, PL105-185, set forth new requirements for peer review of ARS research projects: 1) panel peer reviews of each research project were mandated at least once every five years and 2) the majority of peer reviewers must be external (non-ARS) scientists. In September 1998, ARS commissioned a team to update the peer review process in accordance with these requirements. This team, led by an Associate Deputy Director Administrator, investigated peer review policies and procedures at other government agencies and reviewed prior ARS and REE analyses of peer review practices to identify and prioritize the modifications needed. ARS Area Directors, National Program Leaders, and Deputy Administrator and Associate Deputy Administrators of the National Program Staff also made key contributions to the revision. The new Peer Review Process was implemented in October 1999.

## **Office of Scientific Quality Review**

The Office of Scientific Quality Review (OSQR) is an organizational unit of the Agricultural Research Service (ARS) reporting to the Associate Administrator with primary responsibility for planning and facilitating high quality scientific and technical peer review of all Agency prospective research project plans. The OSQR is a team-based organization consisting of a rotating Scientific Quality Review Officer, a full-time Peer Review Program Coordinator, and two full-time Program Assistants.

The OSQR team manages and implements the ARS peer review process, including peer review policies, processes, and procedures. The OSQR team centrally plans and conducts consolidated peer panel review sessions for each ARS National Program on a five-year cycle, with about five National Programs being reviewed each year.

The OSQR establishes the master schedule of both National Program and other review sessions, and obtains external scientists to serve as panel chairs for each panel. The OSQR team is responsible for and coordinates:

- Panel organization and composition, ad hoc reviewer selection and retention
- Panel membership, retention, and contracts for services
- Reviewer instruction and panel orientation
- The distribution of review results in ARS

- Notification to panelists of the Agency response to review recommendations
- Special, ad-hoc, or re-reviews of project plans

SQR Officers are selected through the Service Employees Team program. Scientists interested in serving as SQR Officer in the future may submit a letter of interest to the OSQR, addressed to the Associate Administrator, to get more details on requirements for the position.

## **ARS Review Systems**

The Office of Scientific Quality Review is one of four review systems that evaluate ARS operations:

1. The Research Position Evaluation System is a process used to classify research positions and assign an individual with the appropriate grade level. The accomplishments of individual scientists are assessed for scientific impact and quality by a convened peer panel.
2. Prospective review of research project plans by the OSQR employs peer evaluation to ensure technical and scientific quality of research plans.
3. Location, laboratory, and research unit reviews are performed periodically to assess programmatic relevance and laboratory productivity and to ensure that sound management practices and procedures are being followed.
4. The 22 National Programs, to which all ARS research is directed, are evaluated every five years by workshops composed of ARS personnel and National Program customers. (See Exhibit 2: Review and Evaluation of National Programs, also.)

**Comments  
for Section 1  
Introduction**