The USDA Agricultural Research Service (ARS) delivers solutions to national and global agricultural challenges through scientific excellence, innovation, and integrity. Through the Office of International Research Engagement and Cooperation (OIREC), ARS develops valuable strategic international partnerships that support and enhance U.S. agriculture. OIREC is part of the ARS Office of National Programs, four primary research areas that guide and empower the approximately 2,000 ARS scientists conducting research on 660 projects across the nation.

**NATURAL RESOURCES & SUSTAINABLE AGRICULTURAL SYSTEMS**
Developing technologies and strategies that help farmers, ranchers, and other managers effectively steward the diverse agricultural mosaic spread across the nation.

**ANIMAL PRODUCTION & PROTECTION**
Improving the health, well-being, and efficiency of livestock, poultry, and aquatic food animals to ensure a productive and safe food supply.

**CROP PRODUCTION & PROTECTION**
Delivering science-based information, genetic resources, and technologies for increased crop productivity, economically and environmentally sustainable methods of crop production, and crop protection from diseases and pests.

**NUTRITION, FOOD SAFETY, & QUALITY**
Maintaining a healthy and safe food supply while improving the economic viability and competitiveness of American agriculture by enhancing the quality and utilization of agricultural products for the benefit of producers and consumers.
Climate Change

Current challenges of climate change and weather variability challenge all aspects of agricultural production systems. ARS has a portfolio that includes diverse projects aimed at improving climate resilience and adaptation of our production systems, including the USDA Regional Climate Hubs, which translate scientific data into regionally useful information for customers and stakeholders.

Long-Term Agroecosystem Research Network (LTAR)

The LTAR network assesses the typical management practices and production systems within each agricultural production region of the United States and assesses opportunities for improving the system or its components that might enhance productivity and profitability while protecting natural resources and reducing negative environmental impact.

Genomics

For many agriculturally relevant species, the current challenge is to predict an organism’s phenotype based on its genotype and environment. Gene editing technologies, which allow the interrogation of existing and novel genetic variation, will facilitate the identification of causal genetic variation.

Data Management and Integration

ARS is constantly working to modernize our data management and infrastructure to ensure that data are consistent, high quality, accessible, and readily available for advanced analytics via Big Data tools such as Artificial Intelligence (AI), Machine Learning, and similar tools.

Technology Transfer

The Office of Technology Transfer (OTT) encourages, promotes, and facilitates the adoption and commercialization of technology resulting from ARS research, helping to move USDA research discoveries to the marketplace and practical application.

Precision Management

Sophisticated sensors combined with computational analysis strategies, such as AI, have made it possible to automate landscape, plant, and animal data collection needed to develop decision support tools and information valuable to U.S. producers across all production systems.

Biological Control

ARS has overseas biological control laboratories (OBCLs) in Argentina, Australia, China, France, and Greece; countries that are the native homes of many plants and insects that are invasive in the United States. OBCL researchers identify and evaluate natural enemies of these invasive pests, with the goal of limiting or eliminating the invasive organisms and reducing their damage to U.S. agriculture, the environment, and public health.

ARS fosters research synergies that cut across the continuum of science to achieve breakthrough innovations. These synergistic projects harness the energy of diverse scientific teams to address complex problems of high national and global importance.