



USDA Agricultural Research Service - Resources for Regional Scientific Collaboration

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AGRICULTURAL RESEARCH SERVICE

Topics

- ARS Structure and Research Priorities
- Current Cooperative Research
- Opportunities for International Cooperation



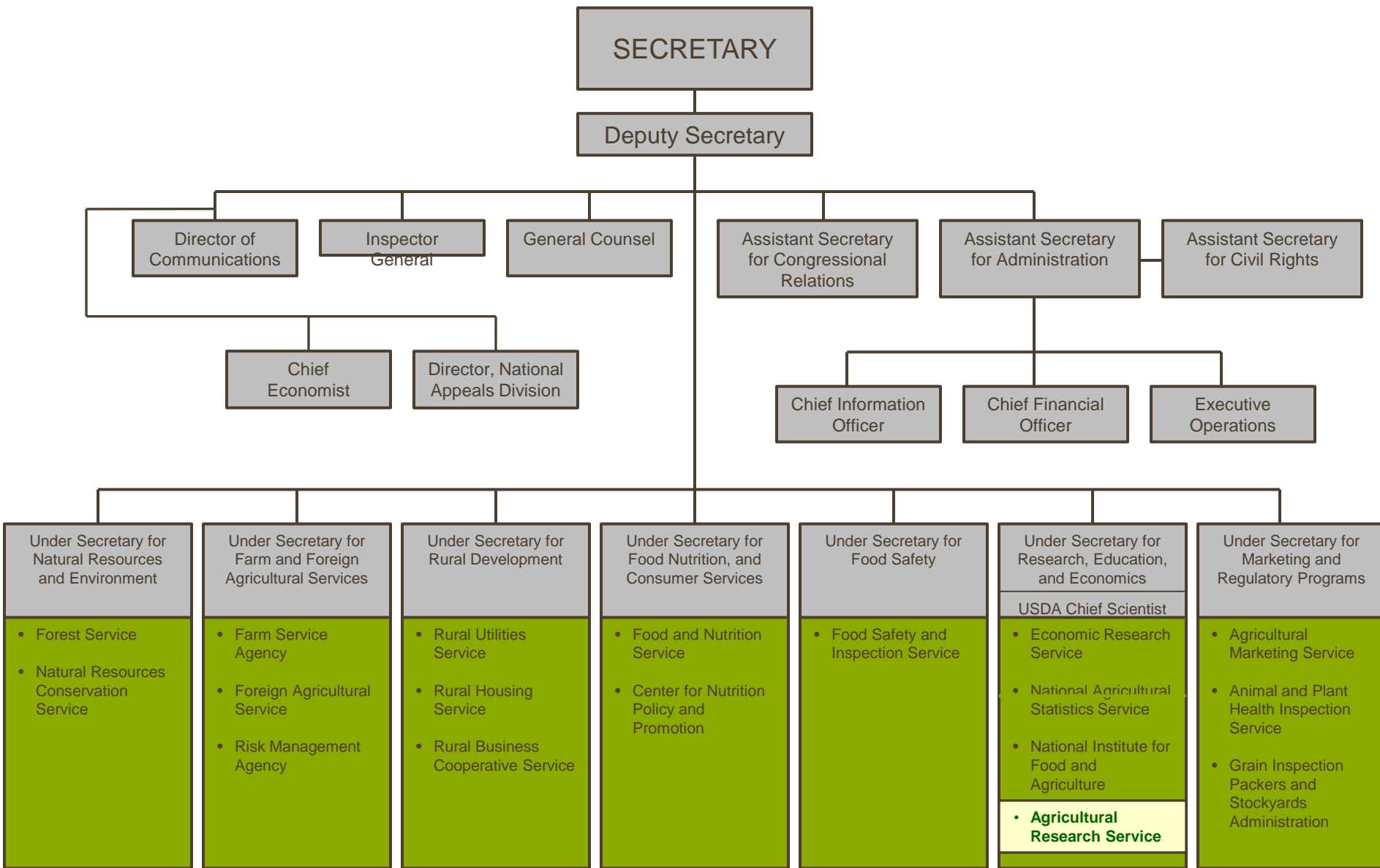


ARS Structure and Research Priorities



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United States Department of Agriculture



USDA Agricultural Research Service



USDA's principal intramural scientific research agency

- 7,000 employees
- 1,800 PhD scientists
- \$1.14 billion 2016 budget
- 750+ research projects

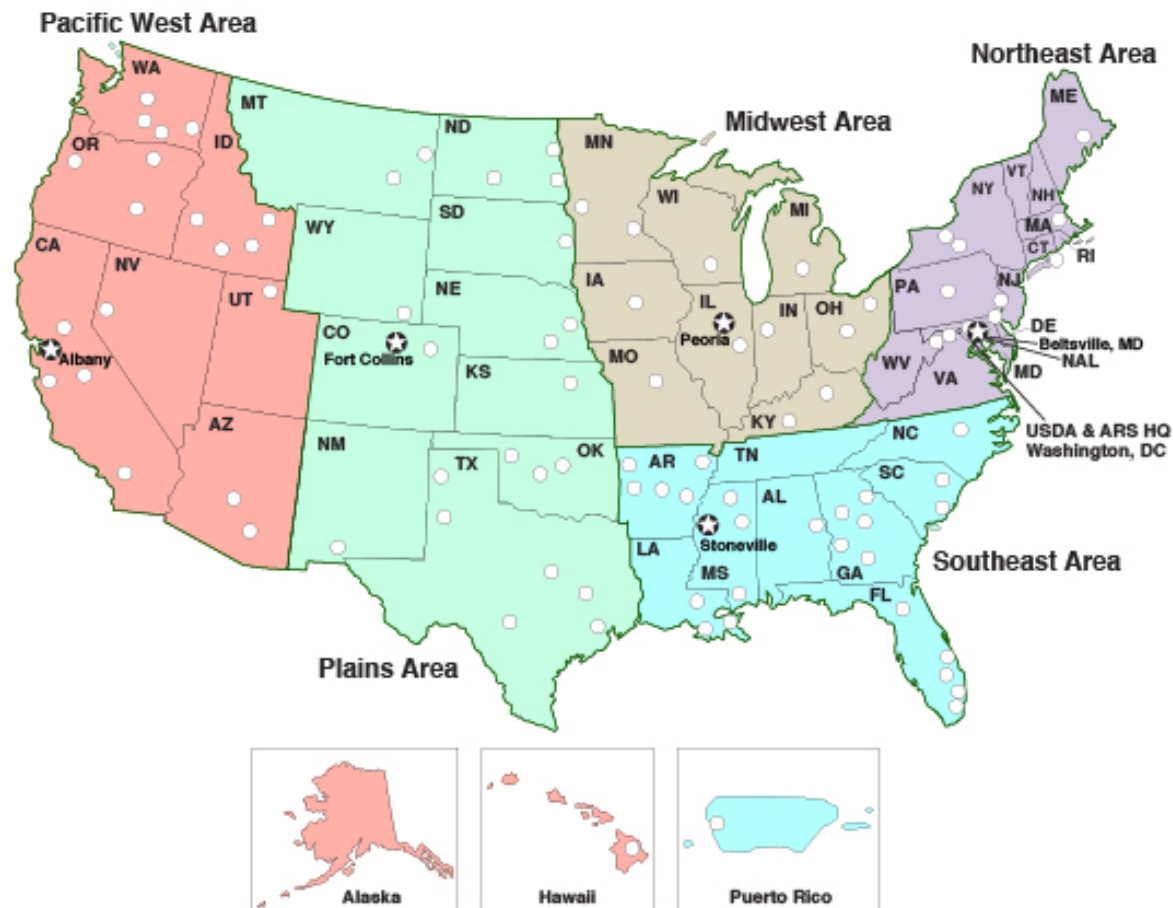


ARS Research Priorities

- Food Security and Hunger
- Sustainable Energy and Bioproducts
- Food Safety
- Climate Change/Sustainability
- Human Nutrition and Obesity



ARS Lab Locations



ARS National Programs

Animal Production and Protection

- Food Animal Production
- Animal Health
- Veterinary, Medical, and Urban Entomology
- Aquaculture

Nutrition, Food Safety and Quality

- Human Nutrition
- Food Safety
- Quality and Utilization of Agricultural Products

Natural Resources and Sustainable Agricultural Systems

- Water Availability and Watershed Management
- Climate Change, Soils, and Emissions
- Biorefining
- Agricultural and Industrial Byproducts
- Pasture, Forage, and Rangeland Systems
- Agricultural System Competitiveness and Sustainability

Crop Production and Protection

- Plant Genetic Resources, Genomics, and Genetic Improvement
- Plant Diseases
- Crop Protection and Quarantine
- Crop Production





Current Cooperative Research



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ARS: Overseas Research

- European Bio Control Lab (France, with Greece satellite)
- South American FUEDEI (Argentina, Foundation)
- Sino-American Bio Control Lab (China, CAAS agreement)
- Australian Bio Control Lab (Australia, CSIRO agreement)



Israel-Binational Agricultural Research & Development (BARD) Fund

- BARD competitive funding for mission-focused, cooperative research
- Fosters strategic, applied agricultural research conducted by American and Israeli scientists to:
 - Increase agricultural productivity particularly in hot and dry climates
 - Emphasize plant and animal health, food quality and safety, and environmental issues
- Researchers – public, nonprofit, or private entities eligible
 - International workshops
 - Fellowships – graduate students, post-docs, and senior research scientists



Partner: Embrapa- Labex

- Established 1998 with ARS
- Brazil Scientists to ARS
- Improves bi-lateral relationship and cooperation
- Synergizes research efforts and resources



South Korea RDA-RAVL Program

- MOU signed in 2002; Program established in 2004
- Facilitated research exchanges between RDA and ARS for about 20 projects
- RAVL – Virtual laboratory
 - Korean scientists to ARS labs
- Research and development on plant genomics and adaptation to climate change, and GMO biosafety





Global Collaboration Platforms

- Complex researchable problems
- Address biology, physics, social, economic, political or other human concerns that affect acceptance, implementation, and adoption of new technologies
- Open, engaged culture allows ideas from engaged participants of any level
- Science-driven solutions

Global/Multilateral Partners

- Global Foot & Mouth Disease Research Alliance
- Global Strategic Alliances for Research Coordination on Major Infectious Disease of Animals and Zoonoses (STAR-IDAZ)
- Global Research Alliance on GHG
- GRIN Global
- Borlaug Global Rust Initiative
- International Research Initiative for Wheat Improvement (G20-Paris, June 2011)



ARS Database System For Sharing Crop Genetics And Genomics



Genebank Database

- Priority for US Departments, US Agencies, international partners.
- Integrated resource system, research community support, sustainable.
- GRIN supports US NPGS. Global partner Bioversity International.
- Expanding links to genetic and genomic databases



Genetic and Genomic Databases

- MaizeGDB, Gramene, Maizesequence.org, genome sequences, genetics, mutants
- 15 genomes and growing – gene identification, annotation, markers, genotypes, trait data, transcriptome, metabolic pathways



Genetic and Genomic Databases

- SoyBase – 30 years of soybean genetics and trait data
- LIS – 3 legume genomes (10 in 2011). Gene identification, annotation, markers, genotypes, trait data, transcriptome. Serves global research community



Tool Development

- New tools to address emerging challenges in plant biology. 3K/16K/21K TASSEL users

Tassel (USDA), DNA Subway
(iPlant/(NSF), KnowledgeBase
(DOE)



Opportunities for International Cooperation



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Potential New Collaborations

- Genetic improvement of crops
- Animal health
 - Emerging Animal Disease workshop
- Big Data Challenges
- Agricultural byproducts



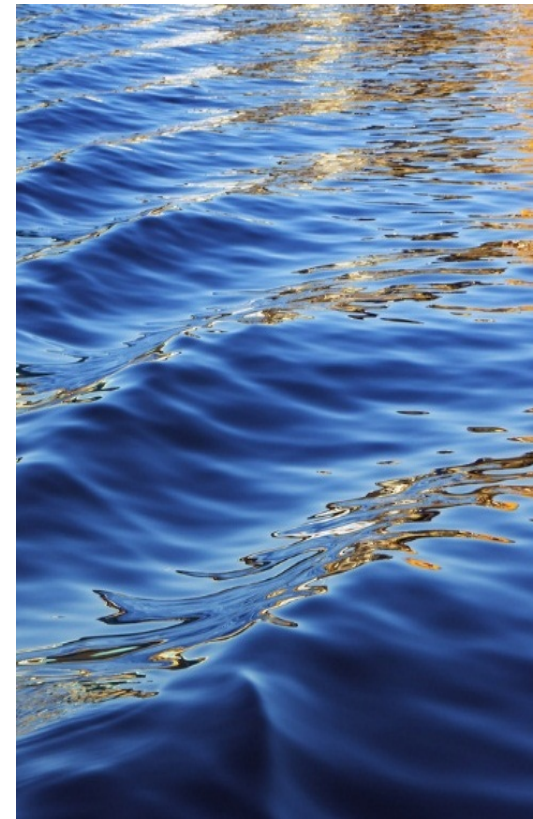
Potential New Collaborations

- Climate change
 - Modeling
 - GHG emissions and mitigation
 - GRACEnet
 - LTAR Network
 - Productivity in post-conflict areas
- Drought and water use
 - Drought workshop
www.droughtmgt.com
 - Remote sensing
- Rangeland management





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