






Partnership Across Agencies ARS, USDA – BOR, DOI: Leveraging Expertise and Capabilities in Areas of Common Interest

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USDA


“The People’s Department ...”

“...provide leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management.”


- **17 Agencies, 12 Offices**
- **Conducts intramural research in 8 agencies (principally in 3)**




United States Department Of Agriculture
Agricultural Research Service



United States Department of Agriculture
Animal and Plant Health Inspection Service



National Wildlife Research Center



FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE

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Partnering with USDA...



ARS Mission

“ARS conducts research to develop *and transfer* solutions to agricultural problems of high national priority and provide information access and dissemination to:

- ensure high-quality, safe food, and other agricultural products
- assess the nutritional needs of Americans
- sustain a competitive agricultural economy
- **enhance the natural resource base and the environment**, and
- provide economic opportunities for rural citizens, communities, and society as a whole.”

➤ *Over 2100 scientists, 100 locations, 1100 projects in 20 National Programs*

<http://www.ars.usda.gov/Research/Research.htm>

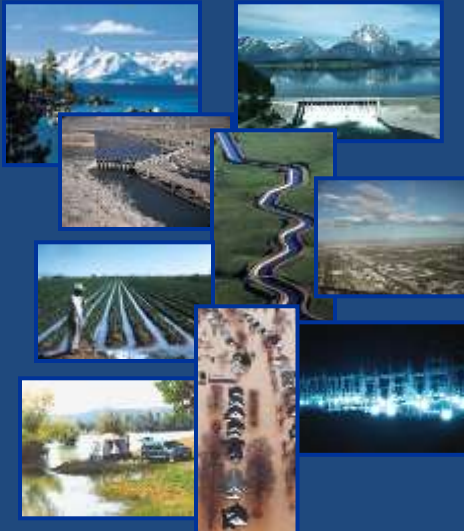
The Research Capabilities of ARS

Program Management of ARS

Animal Production & Protection	Natural Resources & Sustainable Ag. Systems	Crop Production & Protection	Nutrition, Food Safety/Quality
Food Animal Production	Water Availability & Water Management	Plant Genetic Resources, Genomics & Genetic Improvement	Human Nutrition
Animal Health	Soil Resource Management	Plant Biological & Molecular Processes	Food Safety (animal & plant products)
Veterinary, Medical, & Urban Entomology	Pasture, Forage & Range Land Systems	Plant Diseases	Quality and Utilization of Agricultural Products
Aquaculture	Climate Change, soils & Emissions	Crop Protection & Quarantine	
	Agricultural & Industrial Byproducts	Crop Production	
	Agricultural System Competitiveness & Sustainability	Methyl Bromide Alternatives	
	Bioenergy		

Reclamation Mission Statement

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.



348 Reservoirs

245 Million acre-feet of water storage

254 Diversion dams

16,000 Miles of canals

\$9 Billion annual agricultural benefits

M&I benefits to more than 31 million people

58 Hydropower facilities powering over 6 million homes

308 public recreation areas visited by more than 90 million people each year

More than \$12 billion avoided flood damages since 1959

By its mere presence and ownership of facilities, Reclamation directly influences water use and supply patterns in most major western river basins

Reclamation's R&D Agenda

Water Planning and Operations Decision Support

Water Supply Technologies

Water and HydroPower Infrastructure

Environmental Stewardship

Reclamation's R&D Capabilities

Reclamation is primarily a water resource management agency....**not an R&D agency**

Reclamation employs highly qualified engineers and scientists to provide the core technical expertise for mission-specific engineering designs and technical studies.

Reclamation supports a small intramural R&D program that supports Reclamation's water resource management mission (~ \$ 10 million annual program).

Reclamation scientists and engineers conduct or lead research studies as collateral duty. Reclamation employs no full time researchers.

Reclamation Technology Transfer Capability

Most research spun into Reclamation and applied directly or transferred to others through technical journals and reports.

Some research results needs “industry pull” (e.g. desalination, hydropower, water conservation, and water infrastructure)

BOR technology transfer resources:

1. As resource management agency, Reclamation and other DOI bureaus lack institutional TT capacity, and TT has not been a priority to date.
2. 1 FTE technology transfer coordinator in-training; several others engaged in technology transfer (in-training) as collateral duty.
3. Interagency Agreement with USDA-ARS Office of Technology Transfer

Reclamation Technology Transfer Capability

Interagency Agreement with USDA-ARS Office of Technology Transfer

BOR Objectives and Scope:

Live within our small budget, ensure quality, and become more skilled and capable

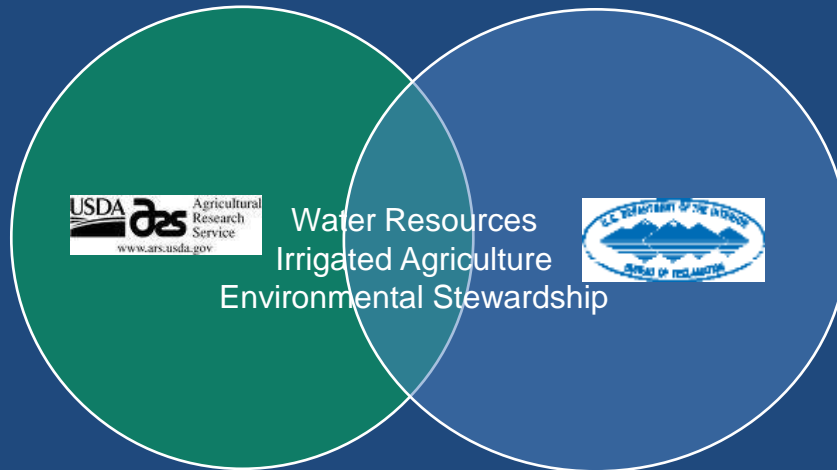
Leverage and utilize TT Expertise and Experience at ARS:

1. **Training** and mentoring (both on-the job and classroom)
2. Ensure high level ARS-TT expertise is engaged in **project and program development and execution**
3. **Promote collaborative research** between ARS and BOR
4. Develop BOR Technology Transfer **guidelines and process**

Technology Transfer Collaboration

DOI-Reclamation and USDA- ARS

Common and Complementary Research Objectives



Reclamation Technology Transfer Program

Technology Transfer Field	Total Active
Patents	< 25
CRADAs	8
Licenses	5
Other Agreements (MTA,s FUAs)	3

Highlights: USDA-ARS Technology Transfer Support to Reclamation

Patent and Licensing Support

Three different desalination/water treatment technologies that represent potential key advances in capabilities and could strongly position US industry.

Partnership Intermediary "TechComm" facilitating agreements with industry partners through the ARS – ATIP Program.



Highlights: USDA-ARS Technology Transfer Support to Reclamation

CRADA s

Controlling Invasive Quagga and Zebra Mussels



Highlights: USDA-ARS Technology Transfer Support to Reclamation

CRADA s

Reclamation and Municipal Utilities Evaluate New Processes to Turn Impaired Waters into Useable Waters

Potential long-term outcomes:

1. Lower treatment costs to operate Reclamation's Yuma Desalting Plant
2. Additional water in the Colorado River system...the lifeline of the arid Southwest.
3. Possibly unique water treatment processes that can be applied elsewhere

Highlights: USDA-ARS Technology Transfer Support to Reclamation

CRADA s

Reclamation and Municipal Utilities Evaluate New Processes to Turn Impaired Waters into Useable Waters

Research utilizes Reclamation's Water Quality Improvement Center

1. Co-located at the Yuma Desalting Plant
2. Research mission includes reducing costs to operate the Yuma Desalting Plant
3. Research themes include sustainable operations, infrastructure improvement and rehabilitation, advanced materials.
4. Research themes common across the desalination and water treatment community



CRADA Partners: Metropolitan Water District of Southern California, Southern Nevada Water Authority, Central Arizona Water Conservation District

Highlights: USDA-ARS Technology Transfer Support to Reclamation

CRADAs and Collaborative Reclamation /ARS Research

Conserving Water by Reducing Canal Seepage



Adding Polyacrylamide (PAM) to sediment-laden canal waters can reduce seepage losses by as much as 90%

Significantly less expensive than traditional canal linings (e.g. concrete, geotextiles)

Highlights: USDA-ARS Technology Transfer Support to Reclamation

CRADAs and Collaborative Reclamation /ARS Research

Conserving Water by Reducing Canal Seepage



PAM has small amounts of acrylamide which is a neurotoxin, genotoxin, and possible carcinogen.

Using PAM as a canal water flocculent is an unlabeled, unregulated use of PAM

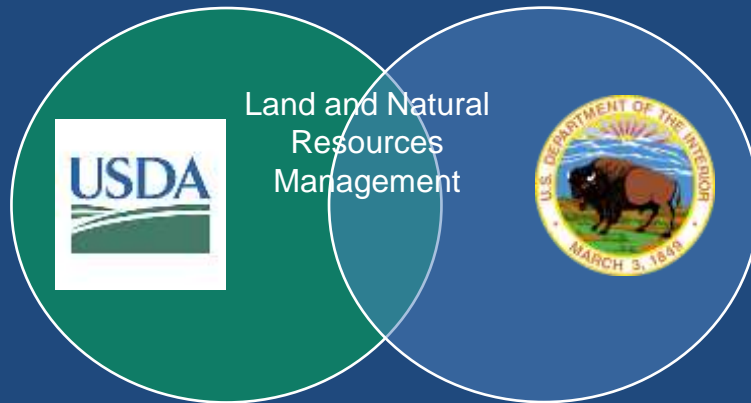
Difficult to achieve safe appropriate use in all canal environments without product labeling or regulatory protocols

BOR / ARS coordination with EPA: explore appropriate regulatory protocols or product labeling for PAM; develop alternative “green” products.

Potential for Technology Transfer Collaboration

DOI and USDA

Common and Complementary *Mission Objectives*



Potential for Technology Transfer Collaboration

DOI and USDA

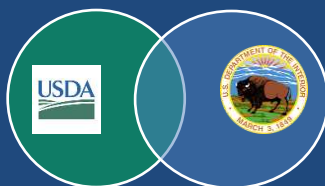
Common and Complementary *Technology Transfer Objectives*



Potential for Technology Transfer Collaboration

DOI and USDA

Common and Complementary Technology Transfer Objectives



Collaborate to Update Technology Transfer Policies and Procedures Toward Consistent and Effective Practices to Serve Mission Objectives Common Across Both Departments – ***this better serves our common customers and stakeholders***

Under existing ARS-BOR Interagency Agreement, DOI Hopes to Learn from, & Leverage & Utilize USDA-ARS Office of Technology Transfer Expertise and Advice on Federal Technology Transfer Policies and Procedures – ***this serves to model how agencies across Departments can establish common practices to facilitate research outcomes arising from federal labs***

DOI and USDA will continue to look for and collaborate on joint R&D, and technology transfer where such collaboration minimizes duplication, provides efficiency, and needed consistency

Technology Transfer Collaboration

DOI-Reclamation and USDA- ARS

Summary --- Bureau of Reclamation perspective:

- Effective utilization and leveraging of existing technology transfer expertise across agencies
- Effective research collaborations across agencies
- Many productive, well crafted technology transfer agreements representing high-impact potential to agencies, public, and private sector.
- Reclamation's internal technology transfer capacity and awareness has increased significantly through on-the-job training and mentoring provided by ARS.