Research Goals and Strategies

We conduct research to develop and transfer economically, environmentally, and socially sustainable management systems for northeastern grazing and cropping enterprises. A combination of experimental and modeling approaches is used to accomplish basic and applied research. We focus on providing the knowledge, capability, and tools to solve important problems that threaten the sustainability of agriculture.

Major Research Projects

- Biodiversity management in northeastern grazing lands.
- Optimizing nutrient management to sustain agricultural ecosystems and protect water quality.
- Management and economics of integrated forage and animal production systems.

Specific research projects target the major components of the farming system, including the key interactions and linkages. Research on forage-livestock systems seeks to improve the productivity, sustainability, and profitability of northeastern forage and grazing lands by managing, enhancing, and exploiting biodiversity. The main goals for research on nutrient management and water quality impacts are to identify key chemical and hydrologic processes controlling nutrient export from agricultural watersheds, define critical areas on the landscape from which this export occurs, assess new remedial measures, and develop management tools to target these measures to critical areas for cost-effective control of nutrient export. Research on integrated farming systems is focused at the farm management scale to develop, refine, and promote forage- and pasture-based dairy and beef production systems for temperate regions of the U.S. that provide profitable farms and help protect the environment.

Research Scientists

Dr. Ray B. Bryant - Research Leader/Soil Scientist
Uses soil information systems to assess resource potential for grazing lands and predict the impacts of farm management at pedon, field, farm, watershed, and regional scales. Conducts research on soil and landscape processes affecting nutrient transport. (ray.bryant@ars.usda.gov)

Dr. Paul R. Adler - Agronomist
Conducts research at multiple scales on the ecology and management of grasslands for production of biofuels, on production practices that impact their value as wildlife habitat, and life cycle analysis of energy crop rotations. (paul.adler@ars.usda.gov)

Dr. Curtis J. Dell - Soil Scientist
Conducts research on soil organic matter and nutrient cycling. Evaluates the impact of soil management and manure application on soil quality, greenhouse gas production, and soil carbon storage. (curtis.dell@ars.usda.gov)

Dr. William J. Gburek - Hydrologist
Conducts research on hydrology of the near-stream environment, hydrologic processes controlling nitrogen and phosphorus transport in natural systems, and hydrology/water quality interactions at the watershed scale. (bil.gburek@ars.usda.gov)

Dr. Sarah C. Goslee - Plant Ecologist
Studies the factors controlling plant species diversity in managed grasslands; including climate, soils, biotic interactions and landscape pattern. Develops methods to support pasture productivity and sustainability by managing plant community composition. (sarah.gosslee@ars.usda.gov)

Dr. Peter J. A. Kleinman - Soil Scientist
Conducts research on nutrient cycling and water quality, focusing on interactions between agricultural management and landscape processes controlling nutrient transport. (peter.kleinman@ars.usda.gov)

Dr. C. Alan Rotz - Agricultural Engineer
Conducts research on farming systems for dairy or beef production. Uses modeling approaches to evaluate and refine strategies for improving the efficiency, profitability, and environmental sustainability of farms. (al.rotz@ars.usda.gov)

Dr. Matt A. Sanderson -Agronomist
Conducts research on the agronomy, ecology, and management of grazing lands to enhance their productivity, sustainability, and profitability. Focuses on plant species diversity, plant-animal interactions, and grazing systems. (matt.sanderson@ars.usda.gov)

Dr. John P. Schmidt - Soil Scientist
Research focuses on identifying critical nitrogen sources and flow pathways in the landscape, quantifying losses to the environment, and reducing losses with alternative agriculture management practices. (john.schmidt@ars.usda.gov)

Dr. Andrew N. Sharpley - Soil Scientist
Conducts research on phosphorus cycling in soil-plant-water systems in relation to fertilizer, manure, crop management, and water quality. Develops tools to rank site vulnerability to phosphorus loss and target measures to limit phosphorus loss from farms. (andrew.sharpley@ars.usda.gov)

Dr. R. Howard Skinner - Plant Physiologist
Conducts research and uses simulation models to examine plant-plant interactions and plant responses to biotic and abiotic stresses in multi-species mixtures. Uses micrometeorological and other techniques to study carbon fluxes in pasture systems. (howard.skinner@ars.usda.gov)

Dr. Kathy J. Soder - Animal Scientist
Develops and evaluates feeding management strategies to improve the economic and environmental sustainability of pasture-based animal systems through improved nutrient utilization, animal productivity, and animal health. (kathy.soder@ars.usda.gov)

Dr. Tamie L. Veith - Agricultural Engineer
Researches land management effects on nutrient and sediment fate and transport through explanatory and predictive models. Evaluates the impact of land management selection and placement on field, farm, and watershed scale losses. (tamie.veith@ars.usda.gov)

Staff

Research Associates
Michael Corson - Ecologist
Peter Vadas - Soil Scientist

Administrative Support

Donita Gibboney - Administrative Officer
Tonya Cherry - Budget & Accounting Assistant
Gary Reed - Administrative Support Assistant
Donald Simmons - Computer Specialist
Ronald Snyder - Engineering Aid
Scott Spear – Maintenance Worker

Program Support

Teri-Anne Jordan - Program Office Manager
Allison Kay Mowery - Program Office Assistant

Research Support

John Everhart - Agricultural Science Technician
Gordon Folmar - Hydrologist
Jeffery Gonet - Agricultural Science Technician
MaryKay Krasinski - Biological Science Technician
Stephen LaMar - Biological Science Technician
Sarah Marshall - Biological Science Technician
Charles Montgomery - Physical Science Technician
Barton Moyer - Chemist
Matt Myers - Agricultural Science Technician
David Otto - Research Laboratory Mechanic
Chad Penn - Soil Scientist
William Priddy - Agricultural Science Technician
Michael Reiner - Hydrologic Technician
James Richards - Hydrologic Technician
Melissa Rubano - Agricultural Science Technician
Lou Saporito - Soil Scientist
Paul Spock - Physical Science Technician
Todd Strohecker - Hydrologic Technician
Terry Troutman - Hydrologic Technician
Joan Weaver - Physical Science Technician

ARS Mission Statement

As the principal in-house research arm of the United States Department of Agriculture (USDA), the Agricultural Research Service has a mission to:

Conduct 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.

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Updated: August 2005

United States Department of Agriculture
Agricultural Research Service

Pasture Systems & Watershed Management Research Unit

University Park, PA