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Department of
Agriculture

National Institute
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and Agriculture

Introduction of the USDA-NIFA

Steve Smith, Ph.D.
National Program Leader
Animal Production Systems



USDA NIFA

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE



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Who We Are

- The U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) was established by the Food Conservation and Energy Act of 2008 (the 2008 Farm Bill) to find innovative solutions to issues related to agriculture, food, the environment, and communities.
- One of four agencies that make up USDA's Research, Education, and Economics (REE) mission area, the agency is structured to direct federal funding effectively to programs that address key national and global challenges. NIFA addresses these challenges by supporting a clear mission, a vision, and goals.

Mission and Vision

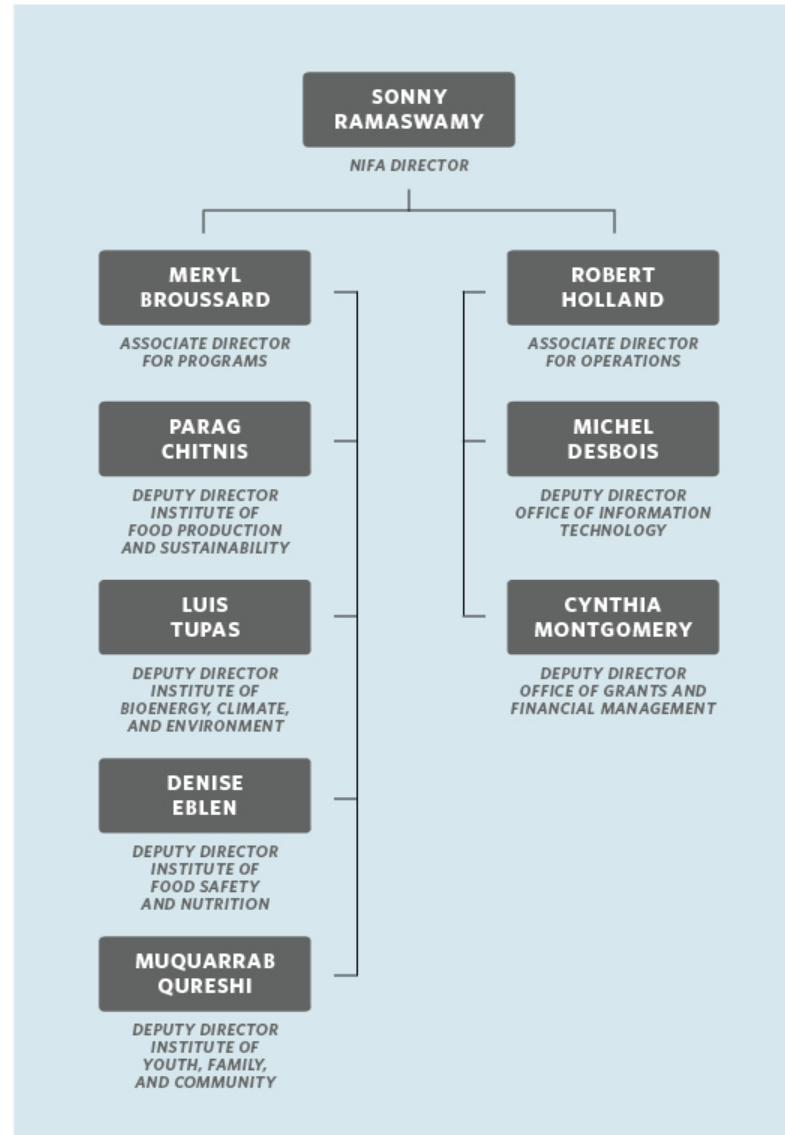
- **Mission:** “Invest in and advance agricultural research, education, and extension to solve societal challenges. “
- **Vision:** “Catalyze transformative discoveries, education, and engagement to address agricultural challenges.”
- **Goals:**
 - Our goals include advancement and application of science and technological tools in order to:
 - Achieve global food security and fight hunger
 - Mitigate climate change impacts on agricultural, forest, and rangeland systems
 - Improve and increase the production of goods and services from working lands while protecting the nation’s natural resource base and environment
 - Contribute to the nation’s energy independence through sustainable production of bioenergy and bio-based industrial products
 - Combat childhood obesity by ensuring the availability of affordable, nutritious, and safe food and providing individuals and families science-based nutritional guidance
 - Ensure the development of human capital, communities, and a diverse workforce

OUR ORGANIZATION



How We Work

NIFA's programs rely upon a three-pronged strategy that integrates research, education, and extension. Partnerships have an essential role in this strategy.



What We Do

- NIFA-supported programs are turning research into action. NIFA supports research, education, and extension activities through three mechanisms – competitive grants, formula grants, and non-competitive grants.
- Meeting agency mission and goals, our projects are engaged in finding innovative ways to:
 - Meet the growing global food demand
 - Fight hunger and food insecurity in vulnerable populations
 - Develop regional systems for sustainable production of optimal biomass
 - Help farmers and ranchers adapt to changing weather patterns
 - Ensure that nutritious foods are available at affordable prices
 - Reduce greenhouse gas emissions
 - Enhance youth and family development
 - Build energy independence
 - Strengthen educational capacity to prepare the next generation of scientists, agricultural producers, and educators
 - Restore and sustain natural resources supplies
 - Ensure the health of delicate ecosystems



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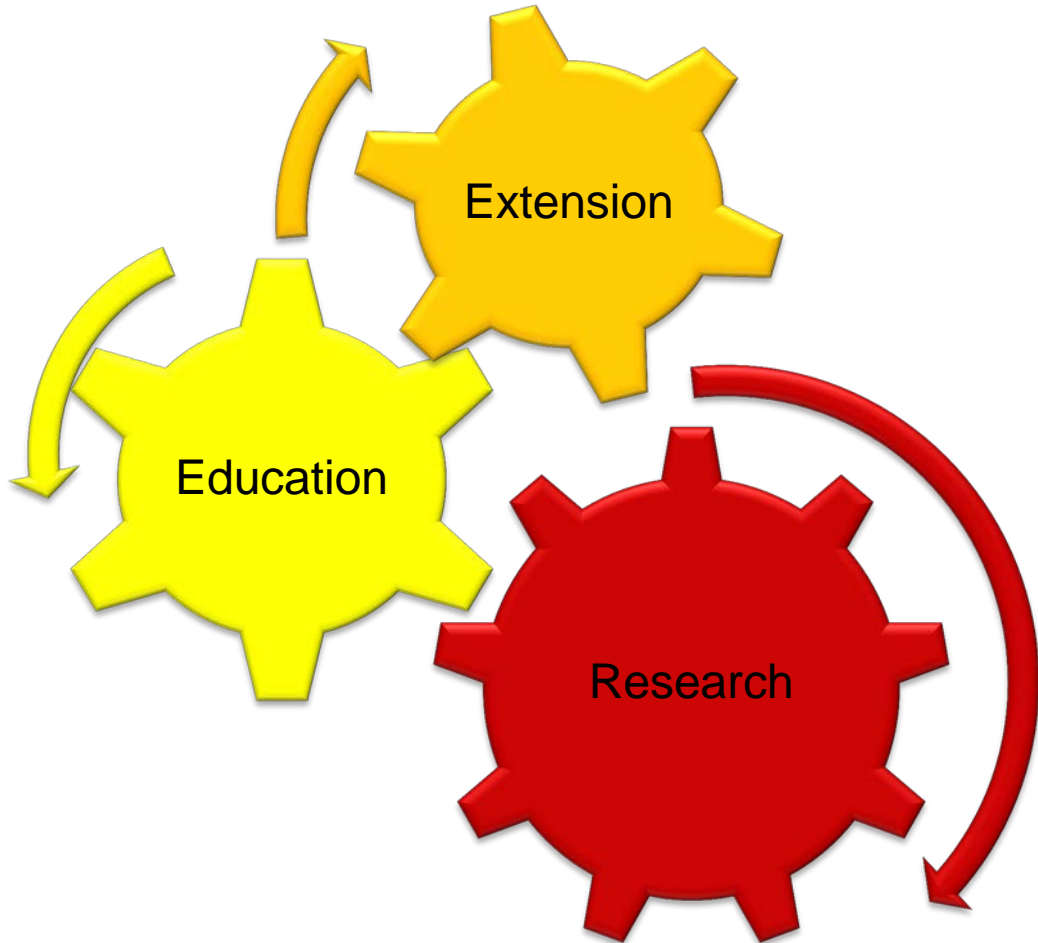
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Challenge Areas

- NIFA supports research, education, and extension in six national challenge areas. These challenge areas include:
 1. **Food security:** *Advance our nation's ability to achieve global food security and fight hunger*
 2. **Climate variability and change:** *Advance the development and delivery of science for agricultural, forest, and range systems adapted to climate variability and to mitigate climate impacts*
 3. **Water:** *Optimize the production of goods and services from working lands while protecting the nation's natural resource base and environment*
 4. **Bioenergy:** *Contribute to energy independence and enhance other agricultural systems*
 5. **Childhood obesity:** *Combat childhood obesity by ensuring the availability of affordable, nutritious food and providing individuals and families science-based nutritional guidance*
 6. **Food safety:** *Reduce the incidence of food-borne illness and provide a safer food supply*

NIFA Funding Support



- Research - Provide answers to the complex issues facing society
- Education - Support schools and universities in training the agricultural workforce
- Extension - Provide knowledge gained through research to agricultural workforce; theory to practice

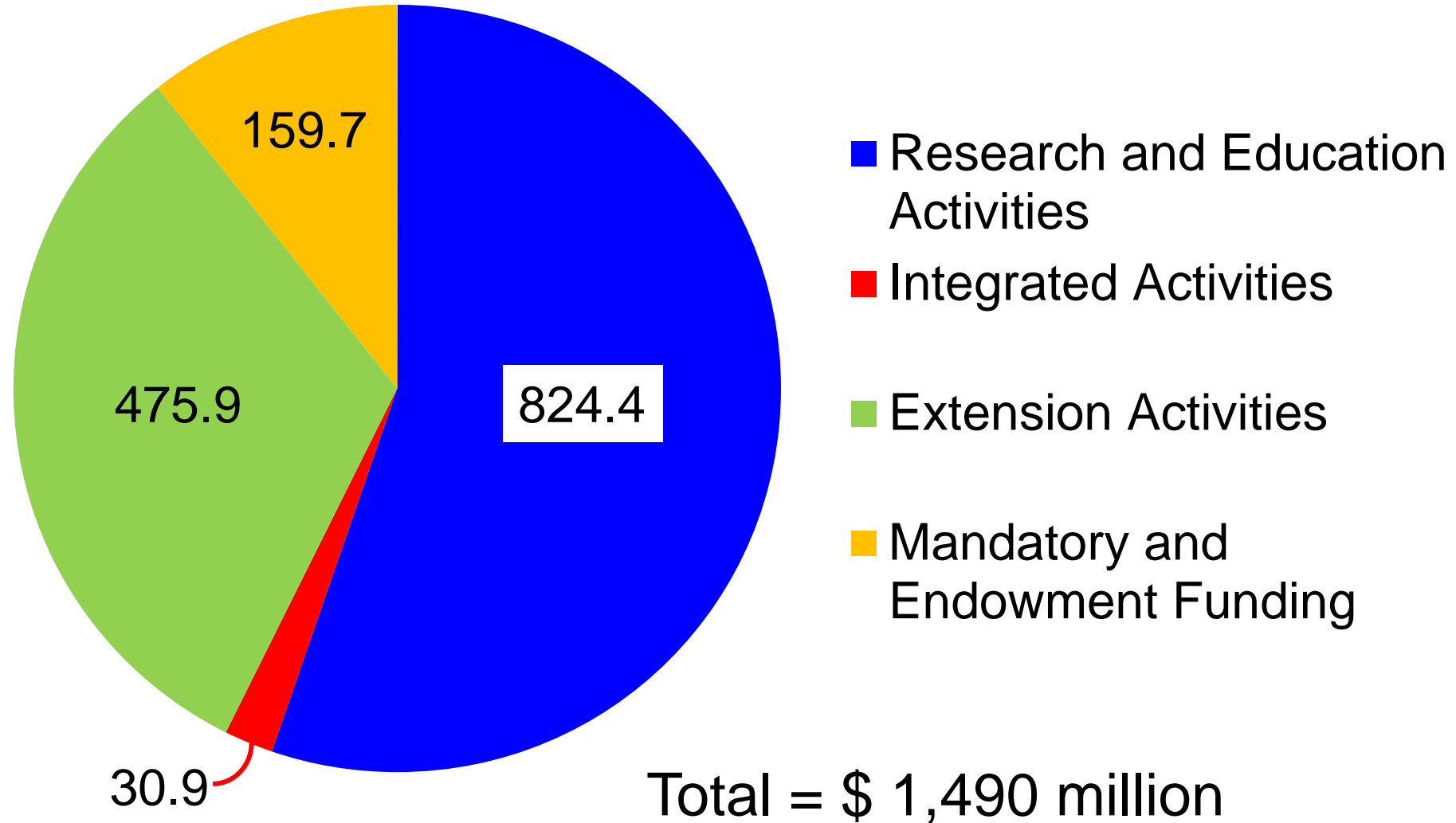


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NIFA's FY 2016 Budget (million dollars)



Types of Federal Assistance

- **Competitive Grants:** NIFA awards competitive grants for fundamental and applied research, extension, and higher education activities, as well as for projects that integrate research, education, and extension functions. Competitive programs enable NIFA to attract a large pool of applicants to work on agricultural issues of national interest, and to select the highest quality proposals submitted by highly qualified individuals, institutions, or organizations. Awards are made following a rigorous peer-review process.
- **Who is eligible**
Individuals, institutions, or organizations may apply according to criteria listed in the RFA. For specific information on who may apply, refer to the RFA's section on eligibility (Part III, A).
- **Search for grants**
Prospective applicants may view open RFAs on the [NIFA website](#) and on [Grants.gov \(link is external\)](#). To be notified of RFA release, sign up at [Grants.gov \(link is external\)](#) or on the NIFA website.



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Types of Federal Assistance

- **Capacity Grants** ensure that the Land-Grant University System and other partners maintain the “capacity” to conduct research and extension activities. Capacity Grants are intended for land-grant institutions, schools of forestry, and schools of veterinary medicine to fund research and extension activities. The amount of funds provided to each institution is determined by a formula, often statutorily defined, that may include variables such as the rural population, farm population, and poverty rates. Local or regional university leaders determine which projects will be supported by an institution’s grant allotment. These decisions are informed, in part, by stakeholders who both conduct and use agricultural research and extension programs.
- **Who is eligible:** Land-grant institutions and schools of forestry and veterinary medicine are eligible for capacity grants.

Types of Federal Assistance

- **Non-competitive Grants** are directed by Congress to support designated institutions for research, education, or extension on topics of importance to a state or region. These projects are supported through Special Research or Direct Federal Administration Research or Extension Grants. Non-competitive grants differ from capacity grants in that the funding amount is not determined by formulae. Non-competitive grants are issued when:
 - Competition for a particular program has been waived by NIFA in accordance with its authority to do so (7 C.F.R. 3015.158(a) & (c))
 - Non-monetary awards of property or services are made
 - Work started under a prior award must be continued
 - An emergency or a substantial danger to health or safety mandates immediate award
- **Who is eligible:** Only the institution(s) identified in the RFA is/are eligible.



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Competitive Grant Funding

>30 Competitive Programs with broad eligibility

- Agriculture and Food Research Initiative (AFRI)
- Specialty Crop Research Initiative (SCRI)
- Organic Agriculture Research and Extension Initiative (OREI)
- Beginning Farmer and Rancher Development Program (BFRDP)
- Biotechnology Risk Assessment Research Grants Program (BRAG)



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Organization of AFRI

- Aligned with the 6 Farm Bill priorities
- 7 Annual Requests for Applications (RFAs)
 - Food, Agriculture, Natural Resources and Human Sciences Education and Literacy Initiative (ELI) RFA
 - Foundational Program RFA
 - 5 Challenge Area RFAs



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AFRI Foundational Program: Program Areas aligned with Farm Bill Priorities

- Plant health and production, plant products
- Animal health and production, animal products
- Food safety, nutrition, and health
- Bioenergy, natural resources, environment
- Agriculture systems and technology
- Agriculture economics and rural communities



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Food, Agriculture, Natural Resources and Human Sciences Education and Literacy Initiative (ELI)

- Postdoctoral fellowships – individual applies
- Predoctoral fellowships – individual applies
- Undergraduate research and extension experiential learning fellowships – institution applies for a group of fellowships



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AFRI Challenge Areas

- Food Safety
- Childhood Obesity Prevention
- Water for Food Production Systems
- Sustainable Bioenergy and Bioproducts
- Resilient Agroecosystems and Climate



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AFRI Foundational Program versus Challenge Areas

Foundational Program:

- Mostly single function research
- Mostly fundamental research
- Don't change markedly from year to year
- Smaller grant size, \$500,000 maximum
- Individual investigators or small teams



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AFRI Foundational Program versus Challenge Areas

Challenge Areas:

- Mostly integrated programs
- Research component is more applied
- Often change markedly from year to year
- Larger grant size, typically >\$1 million
- Multiple investigators or large teams



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FASE Program of AFRI

- Food and Agricultural Science Enhancement (FASE);
- Help institutions develop competitive projects, and to attract new scientists and educators into high-priority areas of national need in agriculture.
- Pre- and Postdoctoral Fellowships, New Investigators, and Strengthening Grants have specific eligibility requirements, see the RFA for details.



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Newer Program Area Initiatives

- Critical Agricultural Research and Extension (CARE) – projects to yield solutions quickly that can be rapidly implemented by producers
- Exploratory – Innovative ideas not addressed previously; high risk–high reward; preliminary data



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Critical Agricultural Research and Extension (CARE)

Awards up to \$300,000

- Develop and implement solutions to clear, time-sensitive, stakeholder-identified need
- Must integrate research and extension
- Results that can be applied quickly following project completion
- Results that will be adopted or applied at a local, regional, or national level



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1890 Institution Teaching, Research and Extension Capacity Building Grants (CBG) Program

- Build and strengthen institutional capacity through high quality Teaching, Research and Extension programs
- Produce graduates capable of strengthening agriculture
- Deliver needed help to communities, small farms and other clients

Approximately \$18 million was available for grants in FY 2016



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Other Competitive Grant Funding

- Competitive Grant Programs for Higher Education
- Higher Education Challenge Grants Program
- Higher Education Multicultural Scholars Program
- National Needs Graduate and Postgraduate Fellowship Grants Program



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USDA Announces \$8.8 Million Available to Support Agriculture Programs at Hispanic-Serving Institutions



FEATURED INFORMATION



[Data Gateway](#)



[RFA List](#)



[Farm Bill](#)



[Calendar](#)

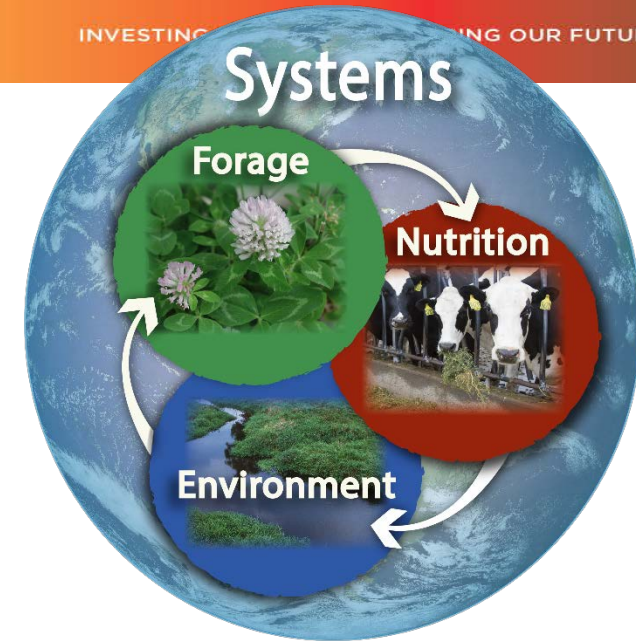


[Careers](#)



[Capacity Grants](#)

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**U.S. Dairy Forage Research
Center**

www.ars.usda.gov/mwa/madison/dfrc



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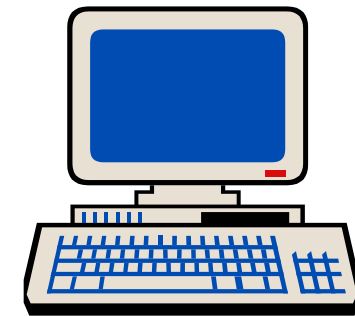
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What To Do If You Have Questions?



Contact the
Program Staff!!!



USDA Update

NCURA Region IV
Madison, Wisconsin
April 23-26, 2017

Mark Boggess, Ph.D., Director
US Dairy Forage Research Service



AGRICULTURAL RESEARCH SERVICE



USDA Update - Agenda

- Introduction to USDA Research Programs
 - USDA Agricultural Research Service (ARS)
 - National Overview
 - Madison Locations
 - USDA National Institute for Food and Agriculture (NIFA)
 - Questions and Answers

USDA ARS, A Problem Solving Organization



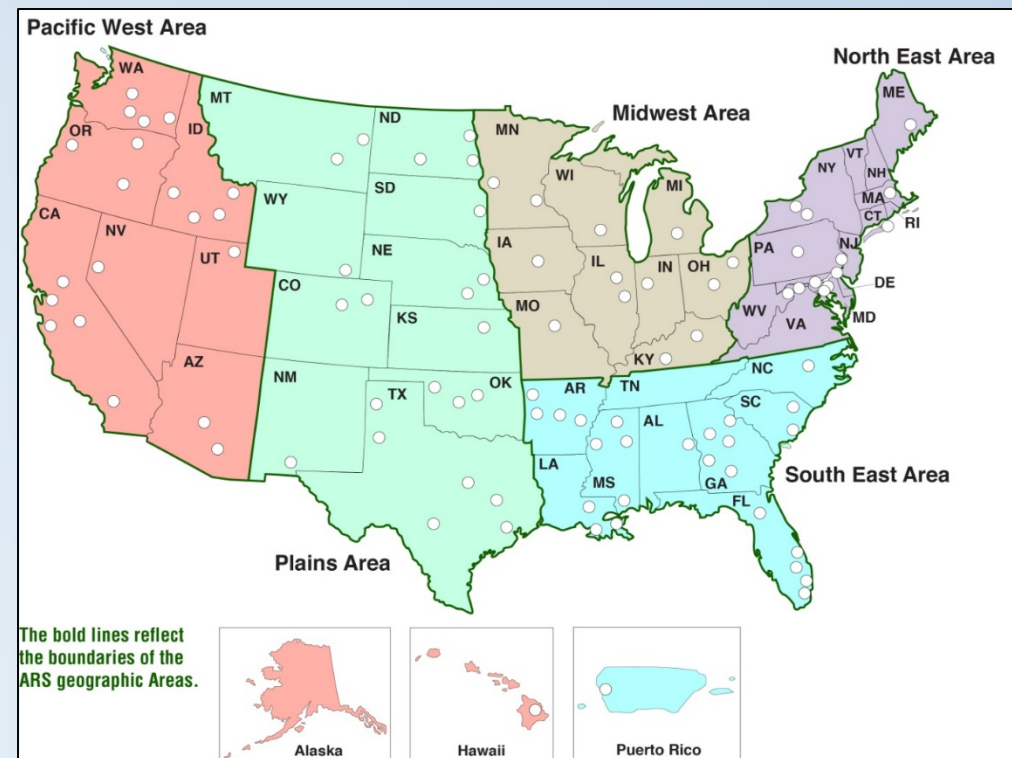
AGRICULTURAL RESEARCH SERVICE



Who is the USDA-ARS?

The **Agricultural Research Service (ARS)** is the USDA's intramural research agency. Our job is finding solutions to agricultural problems that affect Americans every day from field to table. ARS includes:

- 690 research projects in 17 National Programs
- 2,000 scientists and post docs
- 6,000 other employees
- 90+ research locations, including overseas labs in Argentina, Australia, China, and France
- \$1.1 billion annual budget



ARS Mission and Vision

- 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;
 - Provide economic opportunities for rural citizens, communities, and society as a whole; and
 - Provide the infrastructure necessary to create and maintain a diversified workplace.
- Vision: The ARS vision is to lead America towards a better future through agricultural research and information.



USDA and ARS

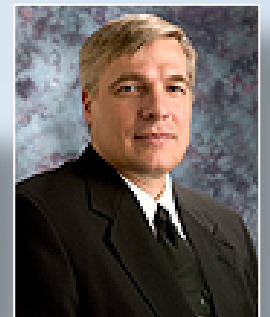
ARS is one of four
Agencies in the
USDA Research,
Education, and
Economics
mission area.



Dr. Simon Liu
Associate Administrator
Research Operations



Dr. Chavonda Jacobs-Young
Administrator
Agricultural Research Service



Dr. Steven Kappes
Associate Administrator
National Programs

Pending
USDA Secretary

Pending
Under Secretary, Research,
Education, and Economics (REE)

ARS Research Priorities

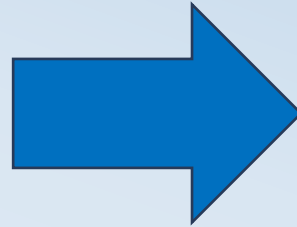


Operating a ride-on water reel cranberry harvester in New Jersey.

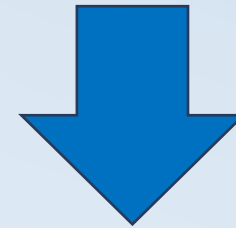
- Food Security and Hunger
- Sustainable Energy and Bioproducts
- Food Safety
- Climate Change/Sustainability
- Human Nutrition and Obesity

Setting ARS Research Priorities

- Executive Branch
(USDA, OMB, OSTP, other
Federal Agencies)
- Congress
- Customers, Partners,
Stakeholders, Advisory Boards
- Scientific Community
- Agency Scientists and Leaders



**ARS Research
and Budgeting
Priorities**



**Outcomes drive base funding
allocations and budget increase
proposals.**

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 (animal and plant products)
- Quality and Utilization of Agricultural Products

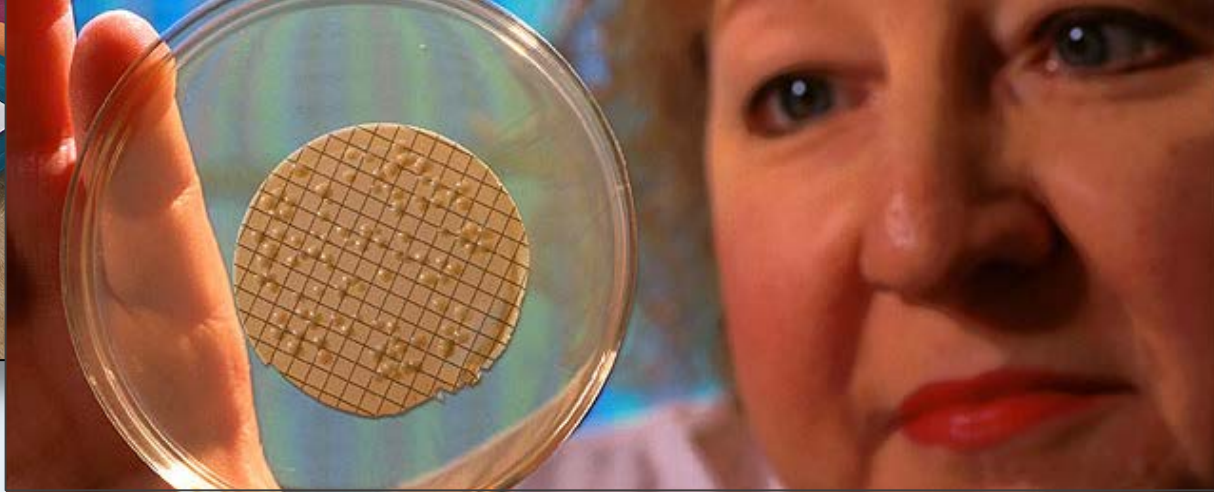
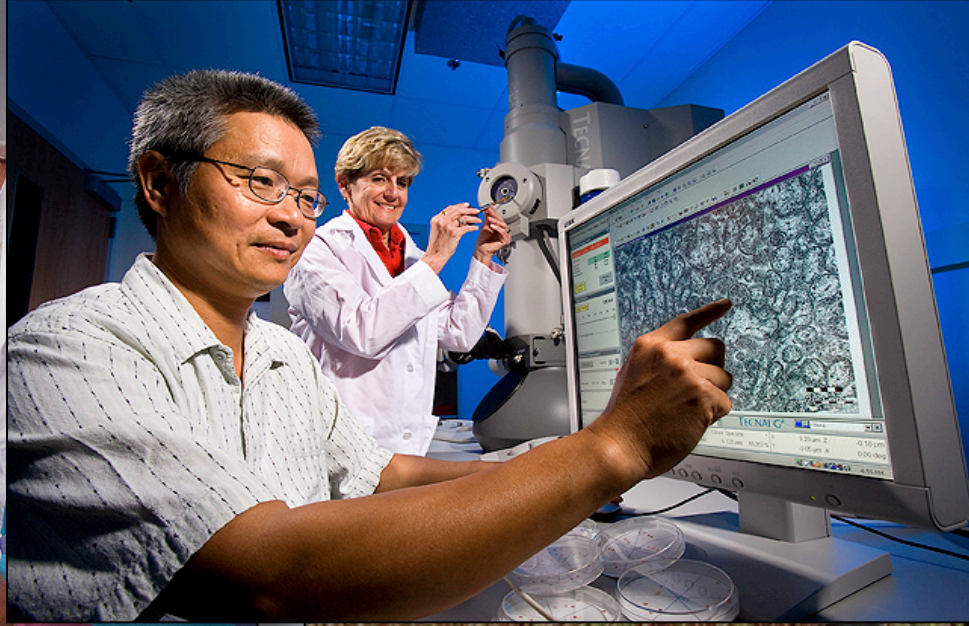
Natural Resources and Sustainable Agricultural Systems

- Water Availability and Watershed Management
- Climate Change, Soils, and Emissions
- Bioenergy
- 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





AGRICULTURAL RESEARCH SERVICE

ARS National Program Cycle

Quality
(Retrospective)
Year 5

- Office of National Programs
- Line Managers





Grand Challenge: A big goal, a common focus, inspiring a unified effort



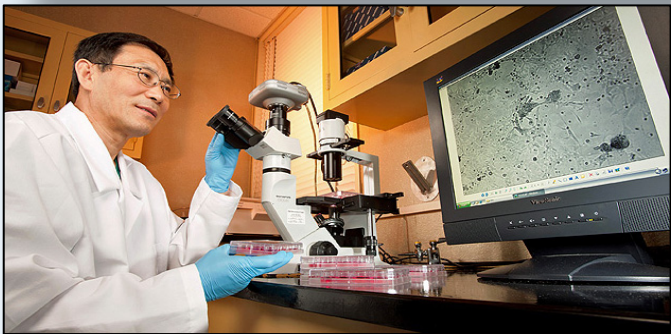
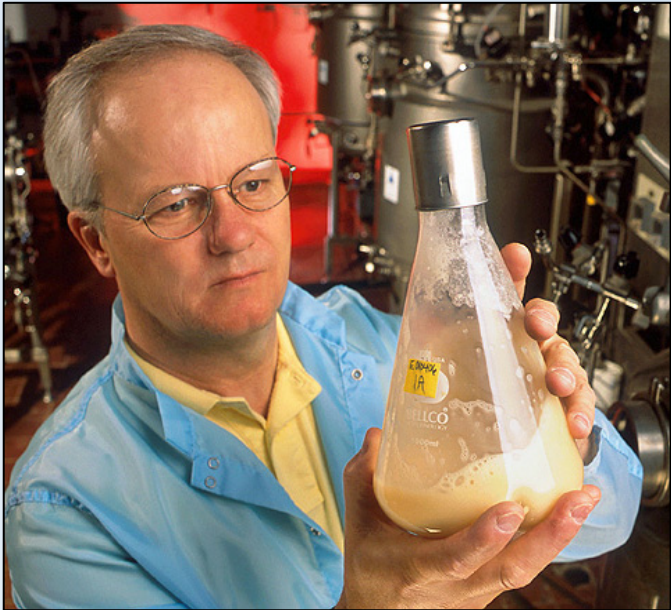
AGRICULTURAL RESEARCH SERVICE

Grand Challenge:

Transform agriculture to deliver a 20 percent increase in quality production at 20 percent lower environmental impact by 2025



Leading America towards a better future through agricultural research and information.



USDA-ARS Research -Madison, WI

3 Research Units

Dairy Forage Cereal Crops Vegetable Crops

M A D I S O N W I



AGRICULTURAL RESEARCH SERVICE

Who Works For ARS In Madison?

We employ (permanent employees)–

- Research Scientists (38, some are UW faculty)
- Professional, Administrative, and Technical Staff (47)
- Secretarial and Clerical Staff (11)
- Trades and Crafts Workers (5)

We employ temporary scientists and staff

- Postdoctoral Research Associates
- Technicians, Student and Summer Employees



USDA-ARS Research in Madison, WI

- Located on UW campus with common research missions
- Fosters collaboration with strongest university research programs in related dairy and crops sciences
- Large state and regional stakeholder industries in dairy and most of the crops researched by USDA-ARS in Madison
 - USDA-ARS takes a national approach but interacts with and serves stakeholders wherever they are in the U.S.
- Complementary, productive collaborations between USDA-ARS with UW and with industry have been realized in terms of expertise, facilities, programs and demonstrated impact.
- Communication essential at the scientist and administrative levels



USDA-ARS Research Units in Madison, WI

- Part of the Midwest Area (one of the 5 Areas, nationally)
 - Third largest location in Midwest Area after Ames, IA, Peoria, IL
 - \$16 M location budget, includes all salaries and facilities
- Dairy Forage Research Center
 - Federal facilities-Madison + 3 other WI locations, 3 MUs
 - Dairy cattle, forage and biofuel crops, fish (aquaculture)
- Cereal Crops Research Center
 - Federal facility, one research management unit (MU)
 - Barley and oats
- Vegetable Crops Research Unit
 - In university facilities, one MU, primary location in Madison + potato germplasm collection at UW Peninsular Ag. Res. Station.
 - Potatoes, carrots, onions, cucumbers, cranberries



What Research is Ongoing in ARS Madison?

- Agricultural Engineering
- Bioinformatics
- Chemistry
- Microbiology
 - Plant Pathology
- Soil Science
- Environmental Science
- Agronomy
- Dairy Nutrition
- Biochemistry
- Biology
- Genetics
- Physical Science
- Plant Science



U.S. Dairy Forage Research Center

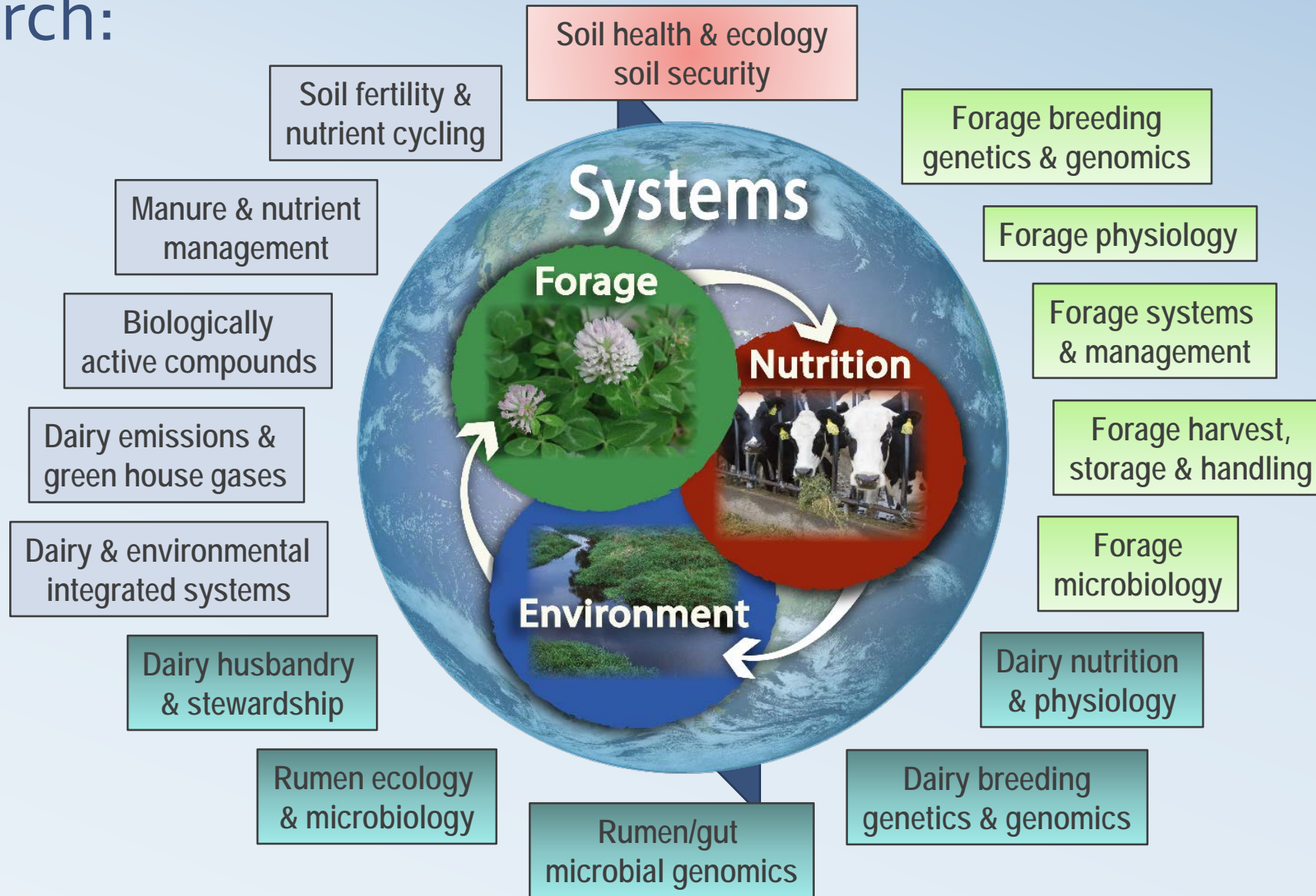


U.S. Dairy Forage Research Center

The U.S. Dairy Forage Research Center addresses national problems which limit effective and efficient use of forage for production of milk; increase yields and quality of forage grown and harvested, reducing losses associated with harvesting, storage and feeding, and maximizing use of forage nutrients by dairy cows for milk production.



USDFRC Integrated Dairy Research:



USDFRC Research Priorities

- Focus on highly integrated dairy system optimized on a landscape scale (watershed, county, state, etc.)
- Understanding GEMS factors: Genetics x Environment x Mgmt x Socio-economic
 - Extraordinary complexity – relationships and interactions
 - Focus on optimization/efficiency, resource ecology, and ecosystem services
 - Building highly effective teams – extensive partnerships
- Research Priorities:
 - Forage and cropping systems
 - Dairy nutrition - Feed/nutrient utilization efficiency
 - Environmental sustainability



Cereal Crops Research Unit



Cereal Crops Research Unit

Cereal Crops Research Unit identifies & characterizes biological & biochemical mechanisms that affect cereal quality leading to enhanced germplasm or improved production practices and evaluates barley and oat germplasm for quality.



Vegetable Crops Research Unit



Vegetable Crops Research Unit

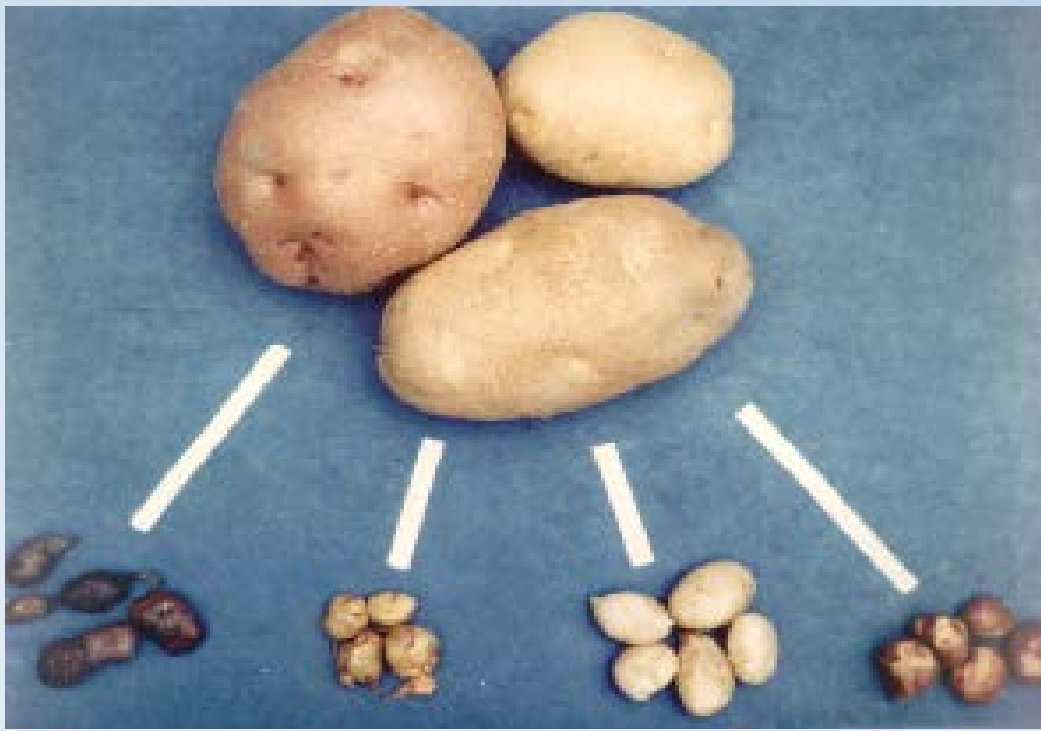
The Vegetable Crops Research Unit investigates the genetics, cytogenetics, taxonomy, disease resistance, physiology, molecular biology and breeding strategies of vegetable crops leading to enhanced germplasm and improved productivity and quality of those crops.



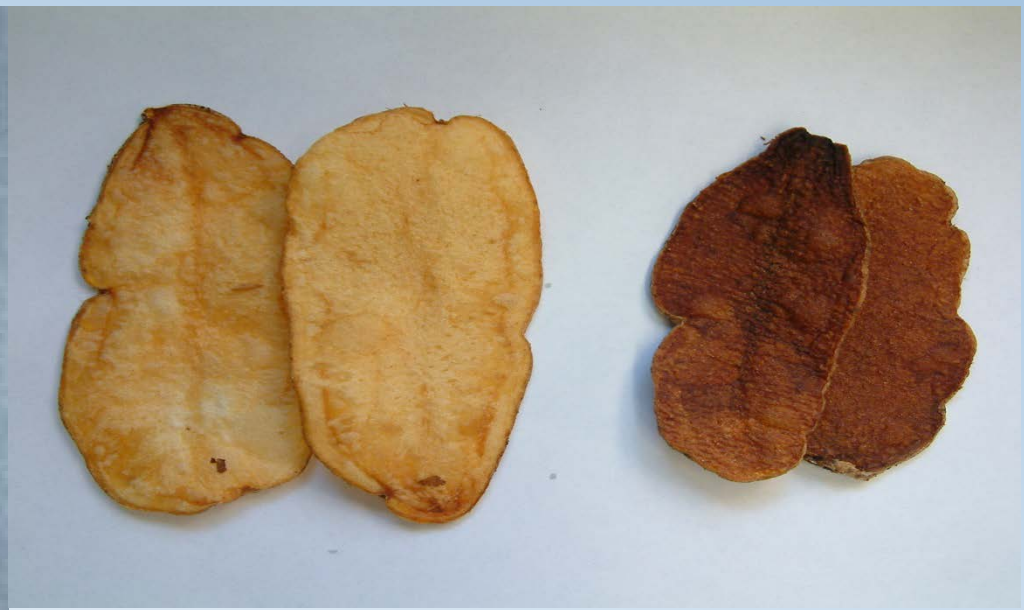
Research at the Vegetable Crops Research Unit

- Identification of genetic, physiological, and molecular systems for improving crop quality, production, and insect interactions, disease resistance and pest management
- U.S. National Potato Germplasm Collection
- Research approaches utilize modern techniques in conjunction with established classical breeding
 - Potato disease and stress resistance, storage quality (5 scientists)
 - Cucumber quality, stress and disease tolerance (1 scientist)
 - Carrot flavor, nutritional quality disease resistance (1 scientist)
 - Onion disease resistance, and flavor (1 scientist)
 - Cranberry quality, pest resistance management, water quality (2 scientists)
 - Insect pollination and seed production (1 scientist)





National Collection of Wild *Solanum* (Potato relatives; small tubers above) in Door County is managed by the USDA, ARS. These wild potatoes from South and Central America have been used to breed many new Potato cultivars (large tubers above)



Potato Breeding Research by USDA, ARS Scientists in Madison, WI to improve Chip Color (above) and Disease Resistance (Late Blight; below)





New Carrots, Onions,
Cucumbers and
Cranberries being
developed by USDA, ARS
Scientists in Madison, WI



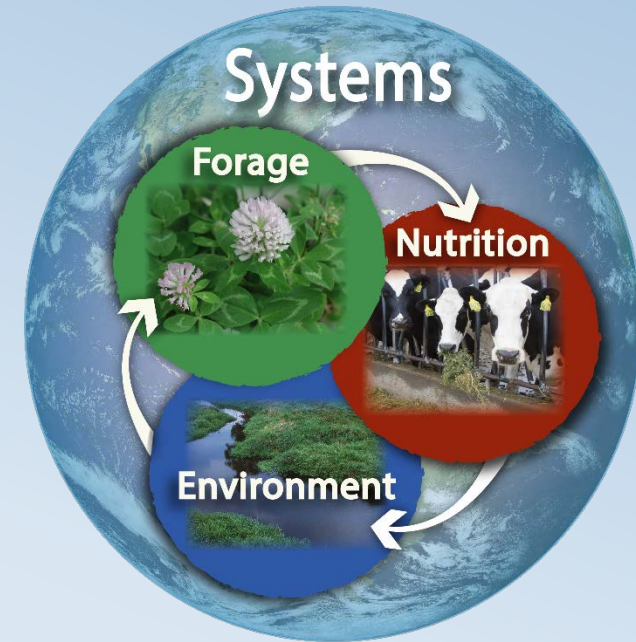
QUESTIONS?

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U.S. Dairy Forage Research Center

www.ars.usda.gov/mwa/madison/dfrc

