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BIOENERGY, CLIMATE,
AND ENVIRONMENT



FOOD PRODUCTION
AND SUSTAINABILITY



YOUTH, FAMILY,
AND COMMUNITY



FOOD SAFETY
AND NUTRITION



INTERNATIONAL
PROGRAMS



USDA NIFA

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE



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User Inspired Science Transforming Lives

Sonny Ramaswamy



Overview

- Challenges
- User Inspired Science
 - NIFA Organization and Focus
 - Priority Setting
 - Competitive and Capacity Funding
- Continuous Process Improvement
 - Grants Modernization
 - Reporting and Accountability
- Transforming Lives

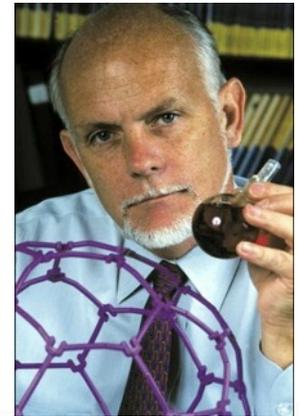


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Societal Challenges

- Population
- Food
- Energy
- Water
- Environment
- Health
- Poverty
- Education
- Democracy
- Terrorism & War



Richard Smalley
1996 Nobel Laureate
Chemistry



21st Century Agricultural System Challenges

- **Agricultural Competitiveness**
 - Improve crop and animal agriculture; enhance farm productivity and income; policies; supply chain; logistics; value-added products
- **Ecological Footprint**
 - Water/land use, natural resource and environmental stewardship, greenhouse gas, variable climate/extreme weather, depleted soils
- **Bioeconomy**
 - Replacements for petroleum-based products and enhance community economic well being
- **Health**
 - Food safety, nutrition, obesity, type II diabetes, cardiovascular disease, dementia, cancer
- **Youth, Family, and Communities**
 - Literacy, hunger, poverty, families/children, youth development, pipeline, jobs and economic security



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User Inspired Science



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NIFA Focus

- **Vision**

- Catalyze transformative discoveries, education, and engagement to address agricultural challenges

- **Discovery through Delivery Continuum**

- Discovery → Translation → Innovation → Solution



The Organization of USDA'S NATIONAL INSTITUTE OF FOOD AND AGRICULTURE — 8.5.14

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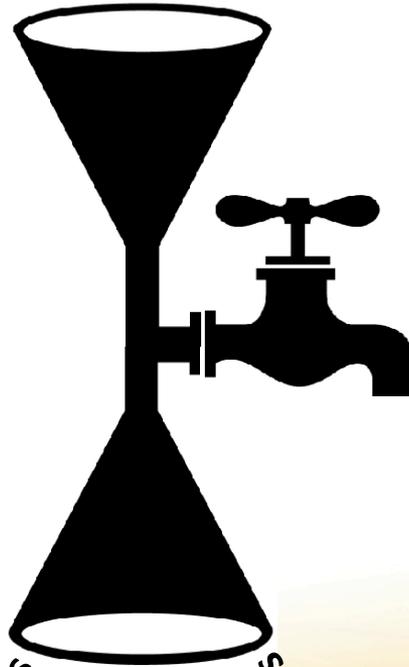


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Priority Setting

Farm Bill Priorities
USDA Strat Plans
REE Action Plan
NAREEAB
WH Priorities
OSTP Priorities



NIFA Priorities
RFA Priorities

Stakeholder Priorities
Scientific Societies
Federal Agencies
LGU Roadmaps
Listening Sessions



NIFA Budget

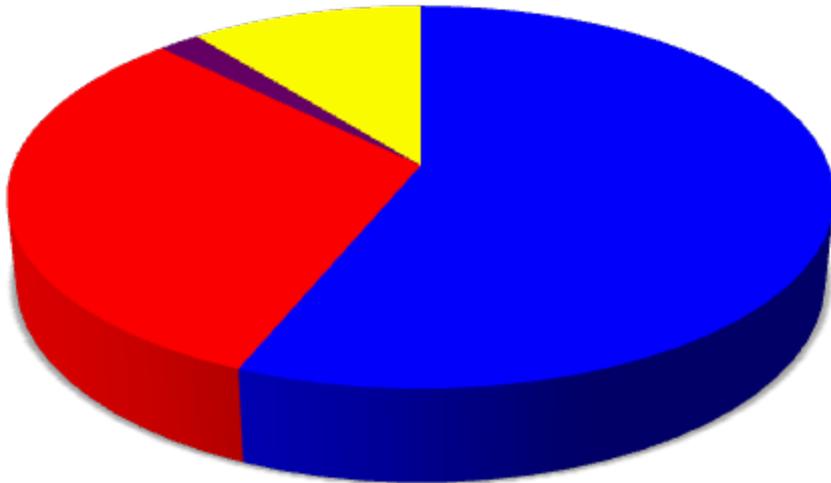
Proposed FY2015: ~\$1.5 B

Research & Education: \$842,773,000

Extension: \$468,968,000

Integrated: \$28,821,000

Mandatory & Endowment: \$159,880,000



FY2015 AFRI: \$325,000,000

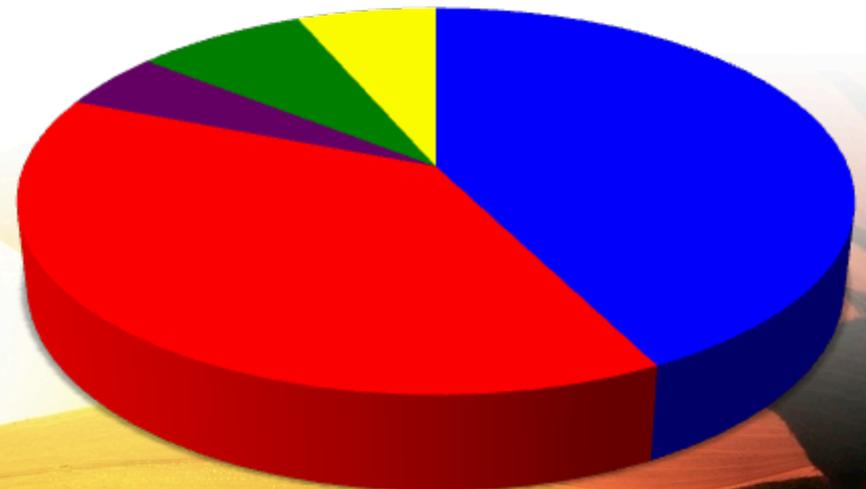
Challenge Areas: \$138,352,000

Foundational Areas: \$124,850,000

Education: \$15,548,000

Interagency Collaborations: \$25,500,000

Admin & Other: \$20,750,000





• Capacity/Formula/Competitive Programs

- Hatch, Evans-Allen, Smith-Lever, 1890s Extension, FRTEP, 1994 Capacity, Insular Areas, CPPM, Many Others
- 4-H, EFNEP, SNAP-ED
- Education
- SBIR



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Competitive Programs

Agriculture and Food Research Initiative (AFRI)

Foundational Areas

- Plant Health and Production and Plant Products
- Animal Health and Production and Animal Products
- Food Safety, Nutrition, and Health
- Bioenergy, Natural Resources, and Environment
- Agriculture Systems and Technology
- Agriculture Economics and Rural Communities



- **Challenge Areas**

- Food Security
- Water
- Nutrition and Childhood Obesity
- Food safety
- Climate Change
- Bioenergy

- **Fellowships**

- Pre- and post-doctoral
- Research and Extension Experiences for Undergraduates (REEU)



Mandatory Programs

- Specialty Crops Research Initiative (SCRI)
- Organic Agriculture Research and Extension Initiative (OAREI)
- Beginning Farmers and Ranchers Development Initiative (BFRDP)
- Biomass Research and Development Initiative (BRDI)



Grant Types

- Capacity Grants Opportunity
- Competitive Grants Opportunity
 - Standard Project Grant
 - CARE and ERG
 - Coordinated Agricultural Project (CAP) Grant
 - Planning/Coordination Grant
 - Conference Grant
 - Food and Agricultural Science Enhancement (FASE) Grant



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Interagency Collaborations

- National Science Foundation
- National Institutes of Health
- Department of Energy
- National Aeronautics and Space Administration
- National Oceanic and Atmospheric Administration
- Department of Defense
- Veterans Administration
- Environmental Protection Agency
- US Agency for International Development
- Department of Health and Human Services
- Centers for Disease Control
- Department of Education



Grants Process

- **National Program Leaders, Program Specialists, Program Assistants:** Manage science
- **Administrative Experts:** Manage financial and awards processes; policies
- **IT Experts:** Manage IT systems to guide and administer grants



Competitive Grants Process

- **Step One:** Design RFA with stakeholder input
- **Step Two:** Widely announce RFA
- **Step Three:** Receive Letters of Intent and/or Applications (Grants.gov)
- **Step Four:** Applications are peer reviewed
- **Step Five:** Announce awards and obligate funds
- **Step Six:** Authorize and disburse funds (ASAP)
- **Step Seven:** Post award management and reporting (CREEMS, REEport, CRIS)
- **Step Eight:** Close out



Requests For Application

- National Program Leaders and Program Specialists
 - Stakeholder input review
 - Science prioritization
 - Develop RFA, vetted up to the level of the Secretary of Agriculture
 - Announcement posted online



Review Panel

- Panel Manager and National Program Leader
 - Invite technical experts to serve on panel
 - Scientific disciplines
 - Conflict of Interest
 - Number of proposals expected
 - Balance of panel composition
 - Geography
 - Gender
 - Race and ethnicity
 - Professional rank and experience
 - Institution/organization type and size



Continuous Process Improvement

- Lean Six Sigma
- Analysis and streamlining
- Development and deployment of modern grants and reporting systems
- Reduced footprint
- Cost savings
- Reinvestment of resources



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Grants Modernization





Heat Maps

State Snapshot Map 9/21/14, 8:49 PM

USDA United States Department of Agriculture
Research, Education & Economics Information System

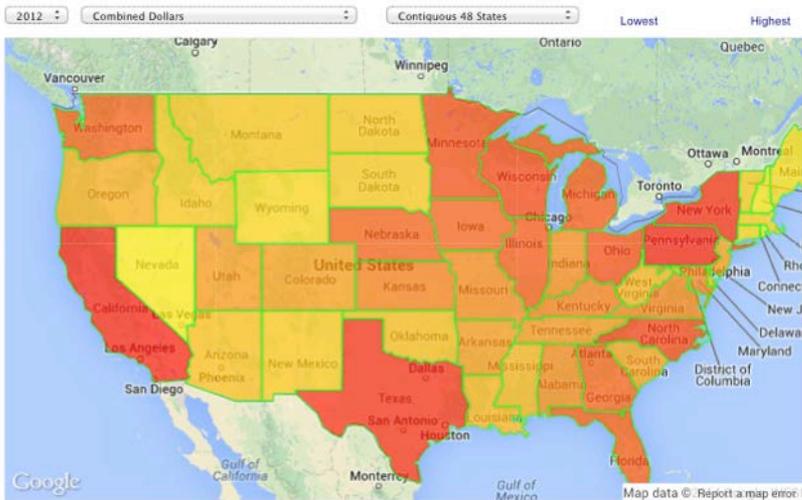
REEIS MEASURING RESULTS

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National and State Snapshots

State Snapshots



*FTEs calculated based on NIFA funding only.

USDA REEIS MEASURING RESULTS

NIFA Funding by Congressional District (113th Congress)

Award Fiscal Year: 2013 NIFA Funding Type: All

\$0 \$39M

State	Ranking	Funding
IA-4	39,377,958	
NC-4	33,730,007	
TX-17	32,068,962	
PA-5	30,869,099	
NY-23	30,206,583	
MI-8	29,323,936	
IN-4	28,810,159	
KY-6	28,373,227	
MN-5	27,273,769	
FL-3	25,499,130	
IL-13	25,316,674	
WI-2	25,128,571	
GA-10	24,752,856	
WA-5	24,315,759	
TN-2	23,721,737	
AL-3	23,438,763	
OR-4	22,975,186	
KS-1	21,857,130	
CA-13	21,070,610	
MT-1	20,264,409	
Total:	\$1,071,526,600	

Boundaries are for the 113th Congressional Districts.
Competitive Grants (previously known as Non-Formula) are NIFA awards for fundamental and applied research, extension, and higher education activities, as well as for projects that integrate research, education and extension.

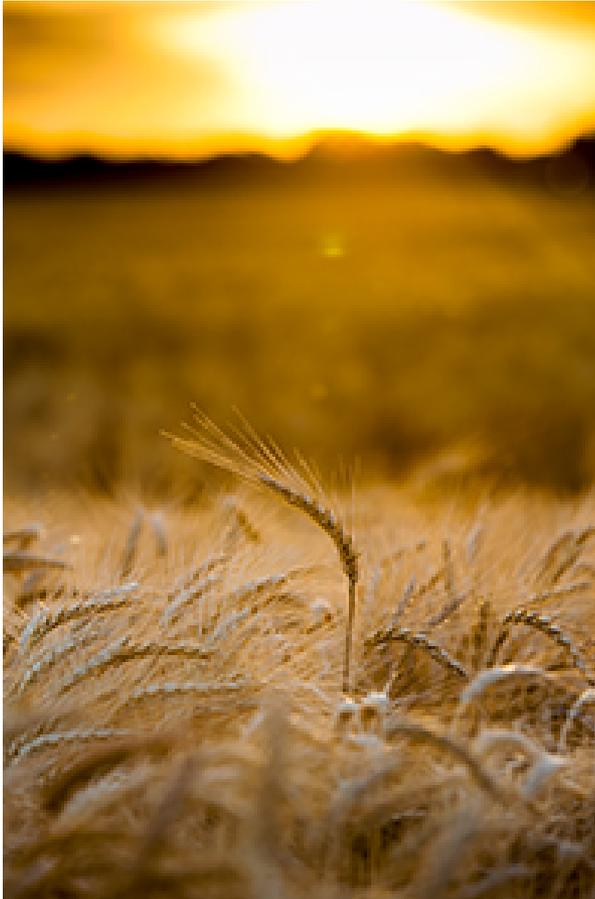
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Transforming Lives



• Breeding and Genetics

– T-CAP Project

- 95 new varieties & germplasm
- 20 percent of US wheat acreage
 - ~\$3.5 billion
- 20 postdocs
- 117 graduate students
 - 14 MSI students
- 87 undergraduate students
- 36 MSI faculty
- 25 visiting scientists



- **Beef Cattle Feed Efficiency**
 - Identified chromosomal regions with “feed conversion genes”
 - Cattle producers use this information to build their herds by selection of breeding stock
 - Increasing nutritional efficiency results in higher profits by reducing feed intake
 - Reduce manure and greenhouse gases
 - University of Missouri

• Hypoallergenic Peanuts

- 12th most valuable cash crop
- Allergies in ~2.8 million people; 400,000 children
- Soaking peanuts in food-grade enzyme solution reduces or eliminates up to 98 percent of allergens
- No effect on flavor
- NC A&T University





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• Water Saving Technologies

- Improved irrigation/water management technologies
- Over 1.5 million acres of cropland
- Savings of 114 billion gallons of water annually—enough water to supply a city the size of Tucson, AZ, for a full year
- University of Nebraska





● Harvest-Assist System

- Labor shortages and costs are driving innovation
- In newer orchards, harvest-assist systems can increase efficiency 30-40%
- Less physically demanding and safer (older or less-capable workers accommodated)
- Two commercial products marketed (and a third, soon)
- Carnegie-Mellon University, LGUs, and industry partners



• Biomass Research & Development

- 25 new patents and invention disclosures
- 49 new products/processes developed
- 60 new jobs created
- 125 jobs retained
- 17,665 learners reached
- 422 publications
- \$68 Million leveraged post-award

- **Nitrate Test Kit**

- SBIR-funded
- Severe droughts increase nitrates in plants
- Nitrate poisoning in livestock
- Nitrates prevent the bloodstream from transporting oxygen
- Test kit for safe forage
- The Nitrate Elimination Company, Inc.





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• 4-H Tech Wizards

- Began as pilot program through CYFAR grant
- Replicated nationally through OJJDP grant
- Now in 26 states, 85 sites, 10K+ youth & adults
- 95 percent high school graduation rate
- 70 percent pursuing post-secondary education
- Oregon State University

• Smarter Lunchrooms

- Increased consumption, reduced plate waste, increased cost savings
- Naming vegetables
 - Saved 6 cents/serving
- Moving fruit next to register
 - Saved 3 cents/serving
- Smarter Lunchrooms makeover
 - Saved 2 cents/serving of fruits and vegetables and 3 cents/entrée
- Slicing fruit
 - Saved 4 cents/serving
- Cornell University





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