National Institute of Food and Agriculture
User Inspired Science Transforming Lives
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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
Societal Challenges

- Population
- Food
- Energy
- Water
- Environment

- Health
- Poverty
- Education
- Democracy
- Terrorism & War
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
User Inspired Science
NIFA Focus

• Vision
  – Catalyze transformative discoveries, education, and engagement to address agricultural challenges

• Discovery through Delivery Continuum
  ➢ Discovery ➔ Translation ➔ Innovation ➔ Solution
Priority Setting

NIFA Priorities
RFA Priorities
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
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
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
Grants Modernization

E-Grants
Heat Maps

http://www.reeis.usda.gov/portal/page?_pageid=193,1&_dad=portal&_schema=PORTAL
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
• 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.
• **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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