Solving Problems in a Complex World: Partnerships...Priceless

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National Institute of Food & Agriculture
Historical Context

- 1862 Morrill Act established land-grant universities as colleges of agriculture and mechanic arts
- U.S. Department of Agriculture established the same year to serve as the federal partner to the LGU system (NIFA mission today)
- Now, 17 agencies in USDA: land management, regulation, marketing, inspection, and R&D
USDA Today…sort of

SECRETARY
Deputy Secretary

Director of Communications
Inspector General
General Counsel
Assistant Secretary for Congressional Relations
Assistant Secretary for Administration
Assistant Secretary for Civil Rights

Chief Information Officer
Chief Financial Offices
Executive Operations

Under Secretary for Natural Resources and Environment
- Forest Service
- Natural Resources Conservation Service

Under Secretary for Farm and Foreign Agricultural Services
- Farm Service Agency
- Foreign Agricultural Service
- Risk Management Agency

Under Secretary for Rural Development
- Rural Utilities Service
- Rural Housing Service
- Rural Business Cooperative Service

Under Secretary for Food, Nutrition, and Consumer Services
- Food and Nutrition Service
- Center for Nutrition Policy and Promotion

Under Secretary for Food Safety
- Food Safety and Inspection Service

Under Secretary for Research, Education, and Economics
- Agricultural Research Service
- National Institute of Food and Agriculture
- Economic Research Service
- National Agricultural Library
- National Agricultural Statistics Service

Under Secretary for Marketing and Regulatory Programs
- Agricultural Marketing Service
- Animal and Plant Health Inspection Service
- Grain Inspection Packers and Stockyards Administration
USDA Expenditures
Another View

2011 Outlays

- Nutrition Assistance 70%
- Conservation and Forestry 7%
- Farm and Commodity Programs 17%
- All Other* 6%

*Includes Rural Development, Research, Food Safety, and Marketing and Regulatory functions
Program leadership to identify, develop, and manage programs to support university-based and other institutional research, education, and extension activities

Fair, effective, and efficient administration of Federal assistance implementing research, education, and extension awards and agreements

Mission: To advance knowledge for agriculture, the environment, human health and well being, and communities

National Institute of Food & Agriculture
NIFA Budget

2011 NIFA Budget Authority

- **2009**: $704
- **2010**: $527
- **2011**: $731

- **Formula**
- **Competitive**
- **Earmarks**
Agriculture & Food Research Initiative

$262M appropriation in FY 2010

Funds basic and applied research, education, and extension

FY 2010: Commit $800M to projects in five USDA challenge areas

- Keep American agriculture competitive while ending world hunger
- Improve nutrition and end child obesity
- Improve food safety for all Americans
- Secure America’s energy future through renewable biofuels
- Mitigate and adapt agriculture to variations in climate
Agriculture & Food Research Initiative

- Release of the first RFAs are anticipated this week
- Grant awards up to $25M per project in some cases, and up to five years duration
- Encourages consortia of institutions, disciplines, and organizations
- Integrate basic and applied research with deliberate education or extension programs
Biomass Research & Development Initiative

- Joint USDA/DOE Program
- $28M in 2010 (USDA)
- RFA release anticipated in early April

Three technical areas
- Feedstock development
- Biofuels and biobased products
- Biofuels development analysis

Emphasis on demonstration projects

Applications must involve consortia of institutions, disciplines, and technologies
Small Business Innovation Research

Research for the development of a profit-making technology, product, or service

| Two-phase program - feasibility and development | $90,000 (Phase I); $400,000 (Phase II) | Small businesses of 500 employees or less | 2.5% set-aside of USDA extramural funding for research |
Specialty Crop Research Initiative

- $230 million in mandatory funding 2008-2012
- Research and extension
- Priority given to multi-state and multi-institutional projects
- 100% non-federal match requirement
- Address the critical needs of the specialty crop industries by developing and disseminating science-based tools to address needs of specific crops and their regions
SCRI Legislation

Five focus areas (10% of funds in each area)

- Research in plant breeding, genetics, and genomics to improve crop characteristics
- Efforts to identify and address threats from pests and diseases, including threats to specialty crop pollinators
- Efforts to improve production efficiency, productivity, and profitability over the long term (including specialty crop policy and marketing)
- New innovations and technology, including improved mechanization and technologies that delay or inhibit ripening
- Methods to prevent, detect, monitor, control, and respond to potential food safety hazards in the production and processing of specialty crops, including fresh produce
Specialty crops are defined in law as fruits and vegetables, tree nuts, dried fruits, and horticulture and nursery crops, including floriculture.
A systems approach is any process of estimating or inferring how local policies, actions, or changes influence the state of the neighboring universe. It is a framework that is based on the belief that the component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation. The only way to fully understand why a problem or element occurs and persists is to understand the part in relation to the whole.
The Problem-Solving Enterprise: Transdisciplinary Teams

- Biological Sciences
- Physical Sciences
- Socio-Economic Sciences

Problem-Solving Team
SCRI Program

- Sustainability is the foundation of the program
- Whole systems approaches required
- Trans-disciplinary teams (biological, physical, and socio-economic disciplines)
- Stakeholder driven objectives, and involvement throughout the life of the project (including advisory boards)
- Include specific mechanisms to communicate results (outreach plan)
<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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</thead>
<tbody>
<tr>
<td>Applications paneled</td>
<td>231</td>
<td>209</td>
<td>144</td>
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<tr>
<td>Total funds requested</td>
<td>$266M</td>
<td>$317M</td>
<td>$235M</td>
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<tr>
<td>Panels</td>
<td>3</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Awards</td>
<td>27 (9)</td>
<td>35 (11)</td>
<td>30-40??</td>
</tr>
<tr>
<td>Success rate</td>
<td>12% (9/31)</td>
<td>17% (13/40)</td>
<td>20-30%??</td>
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<tr>
<td>Range</td>
<td>$350K – $6M</td>
<td>$423K – $5.2M</td>
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## SCRI 2008-2009 Results

<table>
<thead>
<tr>
<th>Total Funds Awarded</th>
<th>PB&amp;G</th>
<th>PM</th>
<th>PP&amp;PE</th>
<th>Tech</th>
<th>Food Safety</th>
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<tbody>
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<td>$28,365,000</td>
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</table>
Observations on Partnerships

- Not unlike other human/social partnerships: marriage, family, friendship, professional, team/club
- Many levels of engagement: administrative, programmatic, and business processes
- Notable differences in cultures and processes
- Partnerships must be crafted with meaning and intent
Summary

USDA R&D is a pico-portion of overall departmental expenditures.

Within NIFA R&D, engineering has traditionally received the smallest piece of the pie.

A problem-solving enterprise (vis-à-vis, a knowledge discovery enterprise) suggests a systems approach.

Partnerships (collaborators, disciplines, functions, resources) are essential when applying a systems approach.

A growing number of NIFA grant programs are supporting large, collaborative projects.