National Institute of Food and Agriculture
www.nifa.usda.gov

Integrated Pest Management at USDA – NIFA

Pesticide Program Dialogue Committee , Arlington, VA, April 20, 2011

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National Program Leader
Urban Entomology and Integrated Pest Management

Why Agriculture IPM Research?

- What are the benefits?
  - Low cost of food: 9.8 percent of disposable personal income *(varies by income ~8-20+%)*
  - Continuing pressure from new pests!
    - CA reports one new invasive threat every 60 days (CISR).
    - FL identified 587 new pests from 5/2007-12/2009 (FL-DPI).
    - APHIS reports – one new pest every 8-12 days (APHIS-PPQ).
- NIFA funds Ag Research, Extension & Education

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

BACKGROUND

The 2008 Farm Bill created the National Institute of Food And Agriculture replacing the previous organization, the Cooperative State Research Education and Extension Service (CSREES)

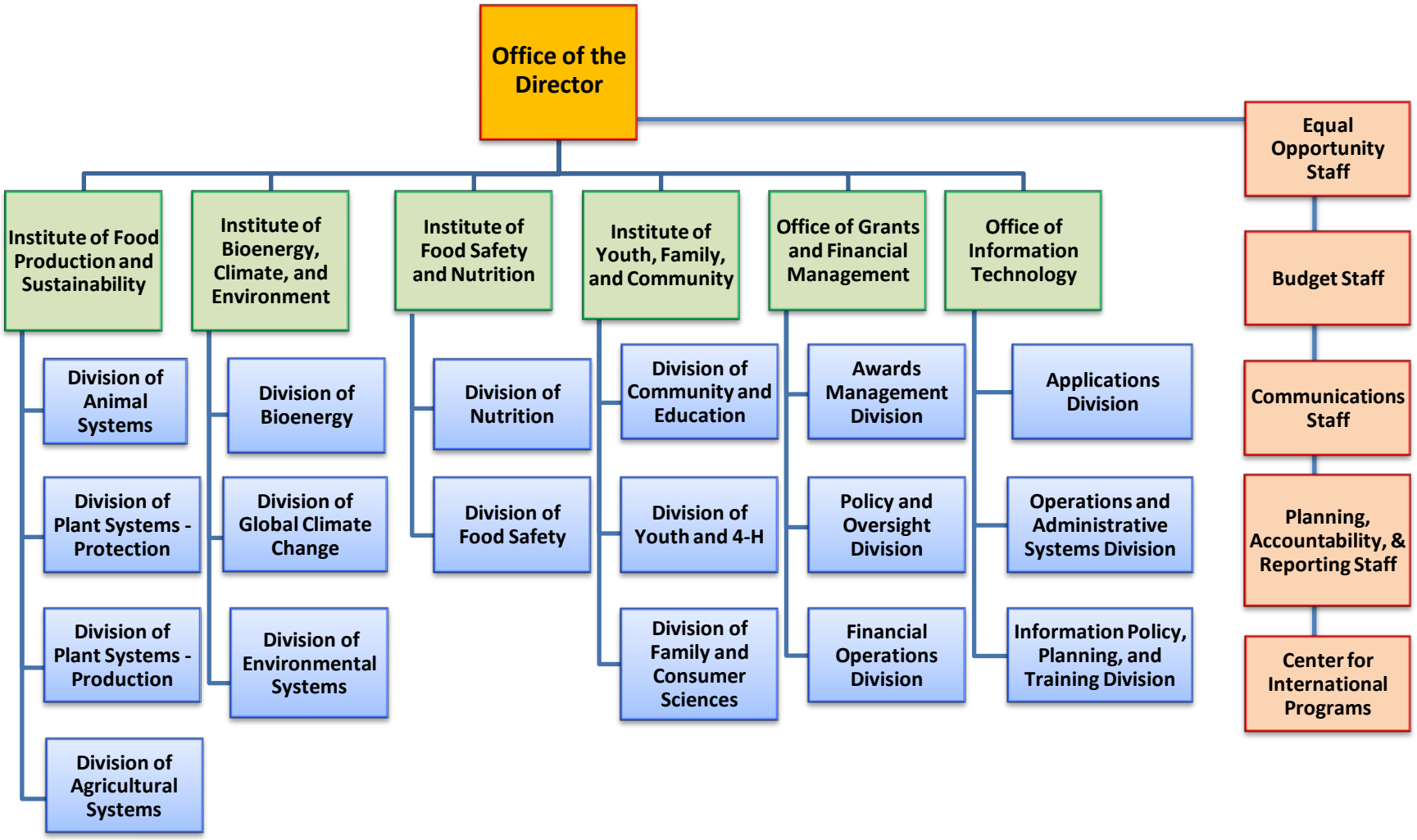
The goal in establishing NIFA was to enhance the stature and impact of food, agricultural and natural resources sciences. The new organization structure allows for the creation of a system to integrate basic and applied research, education and extension/technology transfer to address important issues facing agricultural production, the global food supply, the environment, and rural communities.

NIFA implemented its new structure, October 1, 2010

NIFA's Institutes

National Institute of Food and Agriculture

- Institute of Youth and Community Development
- Institute of Food Safety and Nutrition
- Institute of Bioenergy, Climate and Environment
- Institute of Food Production and Sustainability
  - Division of Plant Systems – Protection
  - Division of Plant Systems – Production
  - Division of Animal Systems
  - Division of Agricultural Systems
- Center for International Programs


Office of the Director
Equal Opportunity Staff
Budget Staff
Communications Staff
Planning, Accountability, & Reporting Staff
Center for International Programs
Institute of Food Production and Sustainability
Division of Animal Systems
Division of Plant Systems - Protection
Division of Plant Systems - Production
Division of Agricultural Systems
Institute of Bioenergy, Climate, and Environment
Division of Bioenergy
Division of Global Climate Change
Division of Environmental Systems
Institute of Food Safety and Nutrition
Division of Nutrition
Division of Food Safety
Institute of Youth, Family, and Community
Division of Community and Education
Division of Youth and 4-H
Division of Family and Consumer Sciences
Office of Grants and Financial Management
Awards Management Division
Policy and Oversight Division
Financial Operations Division
Office of Information Technology
Applications Division
Operations and Administrative Systems Division
Information Policy, Planning, and Training Division

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

FOCUS:

NIFA will focus resources on program and individual project grants in global food security, climate change, sustainable bioenergy, childhood obesity, and food safety that deliver results with great power to improve human, animal, and plant health and protect our environment

SCALE:

NIFA will enable projects at an appropriate scale that promise potential for breakthroughs

OUTCOME:

NIFA will support research, education, and extension where we know the impact can be tangible and meaningful

AGRICULTURAL SCIENCE AT NIFA

NIFA's integrated approach ensures that groundbreaking research discoveries go from the laboratories to the people who can use the knowledge to improve lives

RESEARCH:

NIFA's research enables us to develop the knowledge needed to solve many of the issues facing our nation

EDUCATION:

NIFA's education programs strengthen schools and universities to train the next generation of scientists, educators, producers, and citizens

EXTENSION:

NIFA supports extension that brings the knowledge gained through research and education to the people who need it most – in the United States and around the world

Other IPM Support

- USDA
  - APHIS-PPQ *(Plant Protection and Quarantine)*
  - RMA *(Risk Management Agency)*
  - NRCS *(Natural Resource Conservation Service)*
  - ARS *(Agricultural Research Service)*
  - ERS *(Economic Research Service)*
  - NASS *(National Agricultural Statistics Service)*
  - AMS *(Agricultural Marketing Service)*
- HUD – NIFA IAA, IPM Training in Public Housing
- EPA – NIFA IAA, Pesticide Safety Educator Program

Current Funding Sources for IPM

- Formula/Capacity Programs
  - Hatch *(1862 agricultural experiment stations)*
  - Evans-Allen *(1890 agricultural research)*
  - Smith-Lever *(1862 Cooperative Extension Service)*
  - 1890 Extension *(1890 Cooperative Extension Service)*
  - McIntyre-Stennis *(forestry and natural resources)*
- Smith-Lever 3(d) *(competitive)*
  - Pest Management *(State Extension IPM programs)*

Current Funding Sources for IPM

AFRI *(Agricultural Food and Research Initiative)*

- Foundational Program.
- Fellowships Program.
- Challenge Areas Grant Program.

- Created in Food Conservation and Energy Act (FCEA) of 2008 (Farm Bill).
- Combines authorities of National Research Initiative (NRI) and Initiative for Future Agricultural and Food Systems (IFAFS).
- Appropriations:
  - 2008 - $ 191M
  - 2009 - $ 202M
  - 2010 - $ 262M
  - 2011 - $264M

Current Funding Sources for IPM

AFRI *(Agricultural Food and Research Initiative)*

- **Foundational Program** *($69M in 2011)*
  1. Plant health and production and plant products
     Biology of Agricultural Plants – Understanding Plant-Associated Microorganisms –
     Controlling Weedy and Invasive Plants – Insects and Nematodes
  2. Animal health and production and animal products
  3. Food safety, nutrition, and health
  4. Renewable energy, natural resources, and environment
  5. Agriculture systems and technology
  6. Agriculture economics and rural communities

- Fellowships Program
- Challenge Areas Grant Program

Current Funding Sources for IPM

AFRI *(Agricultural Food and Research Initiative)*

- Foundational Program

- Fellowships Program *($3.6M in 2010)*
  - Graduate
  - Post-Graduate

- Challenge Areas Grant Program

Current Funding Sources for IPM

AFRI *(Agricultural Food and Research Initiative)*

- Foundational Program
- Fellowships Program
- Challenge Areas Grant Program
  - Global Food Security
    - Food Availability
    - Food Accessibility
  - Climate Change
  - BioEnergy/Renewable Energy
  - Food Safety
  - Childhood Obesity/Nutrition

Global Food Security

Focus area → Challenge area

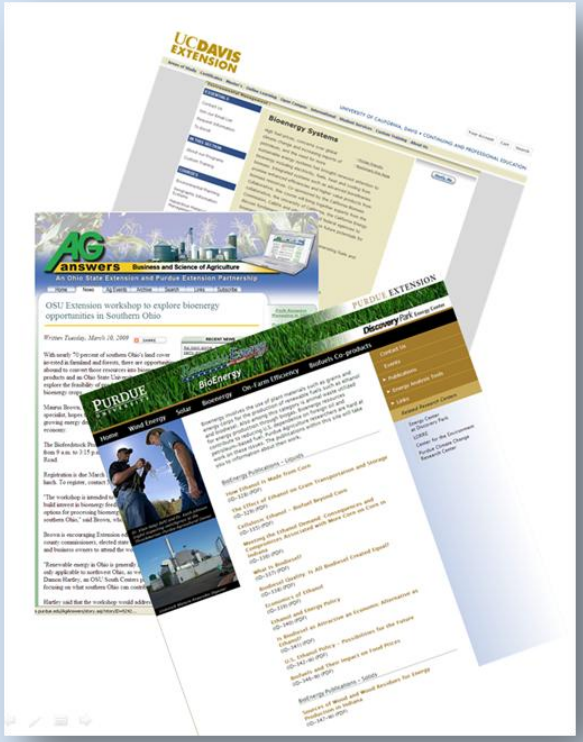
Current and emerging issues:

- Changes in pest levels acceptable.
- Changes in pesticide use/pesticide regulations.
- Changes in the crops grown.
- Threats from new invasive species.
- New pest detection/prediction will be needed.

- Funding in 2010: $ 19 M/yr
- Funding in 2011: $ 12 -19 M

Sustainable Energy *(Bioenergy)*

Focus area → Challenge area



Current and emerging issues:

- Changes in pest damage thresholds.
- Spillover from pests in biomass crops to food crops.
- Changes in the pest complex.
- Changes in beneficial biological controls.
- Impacts on plant and animal biodiversity.

- Funding in 2010: $ 40 M/yr
- Funding in 2011: $ TBD

Climate Change

Focus area → Challenge area

Current and emerging issues:

- Changes in pest and beneficial species composition, relative abundance and geographic range.
- Changes in the severity of damage.
- Changes in the crops and pest adaptation.

- Funding in 2010: $ 55 M/yr
- Funding in 2011: TBD

Food Safety

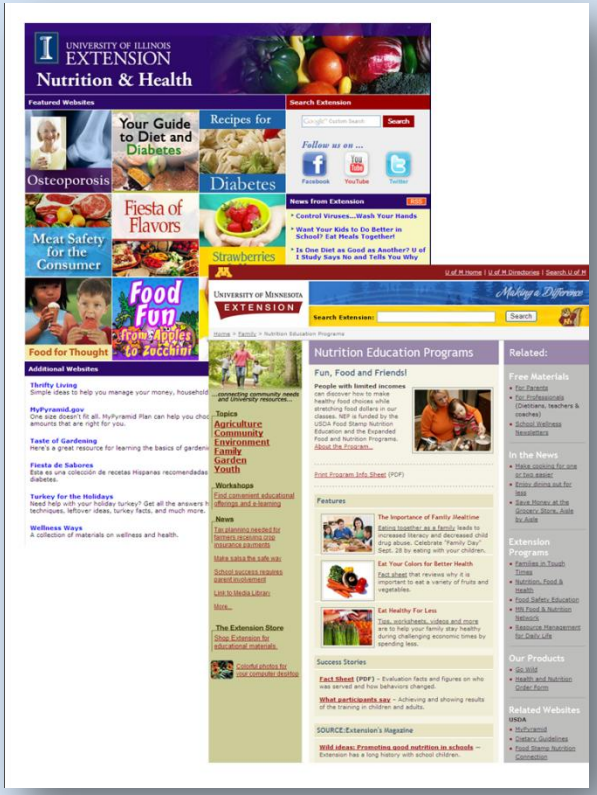
Focus area → Challenge area

Current and emerging issues:

- Changes in packaging/food storage.
- Changes in food handling from farm to table.
- Influence of production practices.
- Changes in pesticide use/pesticide regulations.
- Mycotoxin accumulation.
- Changes in the way crops are grown.
- Funding in 2010: $ 20 M/yr
- Funding in 2011: TBD

Nutrition/Childhood Obesity

Focus area → Challenge area



Current and emerging issues:

- Changes in quality due to pests/ pathogens and microbial contaminants.
- Documented quality differences between “organically- grown” versus “conventional” production practices.
- Changes in pesticide use/pesticide residue issues.
- Potential of arthropods as food sources.
- Funding in 2010: $ 25 M/yr
- Funding in 2011: $ 8.5 M/yr

Current NIFA IPM Programs

Other Funding Authorities

- Food and Agricultural Defense Initiative *(FADI)*
  - National Plant Diagnostic Network
  - National Animal Health Laboratory Network
  - EDEN – Extension Disaster Education Network
  - ipmPIPE – Pest Information Platform for Extension & Education
- Sustainable Agriculture Research and Education *(SARE)*
- eXtension Communities of Practice – Urban IPM and Fire Ants (See extension.org)

NPDN National Plant Diagnostic Network

EDEN EXTENSION DISASTER EDUCATION NETWORK

ipmPIPE

Current NIFA IPM Programs

- Extension IPM Coordination and Support
- RIPM – Regional IPM Research and Extension Grants
- IPM in Specialty Crops Research Initiative
- OREI – Organic Research and Extension Initiative
- AREERA Sect. 406 (integrated) programs, which include:
  - Organic Transitions
  - PMAP – Pest Management Alternatives Program
  - AREERA Sect. 406 (integrated) programs, which include:
    - Regional IPM Centers $ 3 M
    - Crops at Risk $ 0
    - Risk Avoidance & Mitigation $ 0
    - Methyl Bromide Transitions $ 2M

Pollination services

- **Managed Pollinator CAP***
  - Colony Collapse Disorder (CCD)
  - http://www.beeccdcap.uga.edu/
  - Year 3 of 4
  - Reported Outcomes
    - Causes are complex – Not one single cause.
    - Including pathology, immunology, nutrition, toxicology, genetics, ecosystems management, and bee husbandry.

*CAP=Coordinated Agricultural Project

What are the challenges?

- **Continuing issues to address**
  - Solutions for pressing problems: Childhood obesity, environmental stewardship, energy security , food safety and climate change.
  - Food for a global population: Expected increase from 6 B to 9 B in 40 years .
  - Ag as an employer: >2 million farmers and ~19 million in allied industries.
  - Trade deficit: $ 46.3 deficit! But Ag Exports: $ 4.4 billion trade surplus in Feb 2011.
  - New insects, pathogens and other pests!

USDA

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NIFA Information:

On the web:

www.nifa.usda.gov

USDA NATIONAL INSTITUTE OF FOOD AND AGRICULTURE
U.S. DEPARTMENT OF AGRICULTURE

FACTSHEET

NIFA

BACKGROUND

The National Institute of Food and Agriculture was established by the 2008 Farm Bill to serve the nation's needs by supporting exemplary research, education, and extension that addresses many challenges facing the nation. NIFA works with the best and brightest scientists at universities and colleges throughout the United States and around the world to find innovative solutions to global problems. With a timely, integrated approach and collaboration with other federal science agencies, NIFA will also serve as a vital contributor in science policy decision-making.

Research enables us to develop the knowledge needed to solve many of the issues facing our nation and the world. *Education* strengthens schools and universities to train the next generation of scientists, educators, producers, and citizens. *Extension* brings the knowledge gained through research and education to the people who need it most—in the United States and around the world.

PRIORITY SCIENCE AREAS

Global Food Security and Hunger
NIFA supports new science to boost U.S. agricultural production, improve global capacity to meet the growing food demand, and foster innovation in fighting hunger by addressing food security for vulnerable populations.

Climate Change
NIFA-funded projects generate knowledge to develop an agriculture system that maintains high productivity in the face of climate changes. This will help producers plan for and make decisions to adapt to changing environments and sustain economic vitality and can take advantage of emerging economic opportunities offered by climate change mitigation technologies.

Sustainable Energy
NIFA contributes to the President's goal of energy independence with a portfolio of grant programs to develop biomass used for biofuels, design optimum forestry and crops for bioenergy production, and produce value-added bio-based industrial products.

Childhood Obesity
NIFA-supported programs ensure that nutritious foods are affordable and available and provide guidance so that individuals and families are able to make informed, science-based decisions about their health and well-being.

Food Safety
NIFA food safety programs work to reduce the incidence of food-borne illness and provide a safer food supply by addressing the causes of microbial contamination and antimicrobial resistance, educating consumer and food safety professionals, and developing food processing technologies.

LEADERSHIP
Roger Beachy, Director

EMPLOYEES
Approximately 320

STRUCTURE
Institute of Food Production and Sustainability
Institute of Bioenergy, Climate and Environment
Institute of Food Safety and Nutrition
Institute of Youth, Family, and Community
International Programs

BUDGET
Total FY10

Research	$1,488,335,000
Education	736,027,000
Extension	68,363,000
Integrated	494,973,000
Mandatory	60,022,000
	129,000,000

PARTNER LAND-GRANT INSTITUTIONS
Total

1862 Land-Grant Universities	109
1890 Land-Grant Universities	57
1994 Land-Grant Universities	18
	34

National Institute of Food and Agriculture

INVESTING IN SCIENCE - SECURING OUR FUTURE

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