



# *AFRI Integrated Programs*

## **Education**

AFRI Integrated Workshop  
March 9, 2009

A.A. Trotman, Ph.D.

Cooperative State Research, Education, and Extension Service  
<http://www.csrees.usda.gov>



## Presentation Explores:

- potential opportunities
- possible performance indicators
- threats to success in integrated projects with education/extension components
- successful outcomes
- wide-ranging education projects across varied institution settings

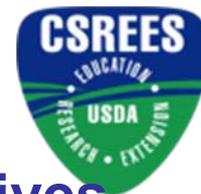


# Working Definition of Education<sup>1</sup>

Knowledge and competency<sup>2</sup> building through formal, institution-delivered<sup>3</sup> programs, that develop people to meet the science, economics, social, global and management needs of the food and agricultural systems.<sup>4</sup>

- 
- <sup>1</sup> PL 104-127, Sec. 1404 and PL 110-246 Sec. 7101: To distinguish between the CSREES' education and extension activities.
  - <sup>2</sup> Competency development obtained through engaging in learning, teaching and training.
  - <sup>3</sup> Institution-delivered programs may be degree, diploma, non-credit enrichment activities.
  - <sup>4</sup> Postdoctoral training is considered professional preparation.

# Funding Priorities



## **Research Proposals:**

- Reflect USDA Strategic Goals and CSREES Objectives
- Specific Priorities in Request for Applications

## **Teaching Proposals:**

- Reflect USDA Strategic Goals and CSREES Objectives
- Specific Priorities in Request for Applications

## **Training Proposals:**

- National Needs
- Human Capital Development Needs
- Employment Opportunities

**Ensuring a well-trained and culturally diverse workforce to meet the needs of a globally interconnected, technologically advanced food and agricultural sciences domain**



# A Priority for USDA Secretary Vilsack:

- ***“Building a modern workplace with a modern workforce. We will focus on information technology and process improvements, led by an empowered and diverse workforce that reflects America and will bring the best ideas to the table.”***

## Potential Strategies

- Identify education objective(s) of interest to you
- Align projects with Secretary Vilsack’s priority for human capital development



# Creative Approaches

- Graduate Students in Grade School Science Room
- Recruitment into sciences for food, agriculture, the environment and renewable resources
- College student internships in Extension
- Training professional in lateral shifts in the workforce





# Potential Performance Indicators

- No Perfect Performance Measure
- Change in Student Learning Outcomes
- Employment
  - Employer satisfaction
  - Employee satisfaction
- Parental Engagement
- Start by looking for a good measure or two; re-examine and revise



# Identify Targets

- What change do you want to effect by when
  - Identify outputs that over time will produce outcomes
  - Set desired levels for improvement
- Break targets down into attributable targets to sub-levels
  - Project target
    - Participant targets



# Potential Opportunities

- Global Competitiveness
- National K-20 STEM Education Goals
- Science Literacy
- Public Engagement





## Threats to Success

- Expectations not clearly identified
- Lack of alignment of measures to objectives
- No clear communication of a vision of project success
- Unclear definitions, metrics, measures, targets and indicators

# Trends in Educational Focus in the Grants Context



Meaningful Education Components

## Workforce Preparation

- *commitment to strengthening US students' preparation to succeed in **Science, Technology, Engineering, and Mathematics (STEM)***
- *education for innovation is the currency of a knowledge-based economy*

## Transparency with Accountability

- **Federal Funding Accountability and Transparency Act (FFATA) - September 26, 2006**
  - requires the Office of Management and Budget to disclose all federal funding contracts, grants, and earmarks in a searchable database
  - [www.ffata.org](http://www.ffata.org)

# Emerging Trends in Educational Programs in the Grants Context



## Partners in Grant Performance

- Measuring Processes and Outcomes
  - What areas should we consider measuring
- Recipient (Applicant) Sets Performance Target Based on Recipient organization's goals, mission, and strategic plan (Align to Logic Model for AFRI Integrated Programs)
  - Identify measurable objective(s), specific and intended result to be achieved, within an explicit timeframe, and against which actual results are compared and assessed

# Emerging Trends in Educational Programs in the Grants Context



## Partners in Grant Performance

- Characteristics of a Good Performance Measurement System
  - Linked to strategic plan; tied to program goals; responsive to multiple priorities; responsibility-linked to establish accountability for results
  - Balance ideal with real world considerations (e.g. cost and effort)
  - Focus on goals and measure end results not on THE MEASUREMENT

# Emerging Trends in Educational Programs



## SMART

- **S**pecific - gives specificity to the education goal; define specific accomplishments to make progress toward the goal.
- **M**easurable - are quantifiable; the project can measure where it is now and where it wants to be.
- **A**chievable - are challenging, yet attainable. They are realistic.
- **R**esults-oriented - focus on outcomes, not add-on functions or services in support.
- **T**ime-certain - specifies a time frame for being achieved.

## Challenges/Opportunities

- **Setting up the performance measurement system; difficult measures; impact on beneficiaries**
  - Using metrics for accountability
- **Data for Trends in Food Systems Education**
  - FAEIS & Employment Outlook
  - National Center for Education Statistics (NCES)
  - Survey of Earned Doctorates (SED)
  - Department of Labor
  - Employment Opportunities



# Why Measure Performance

**To determine if fulfilling vision and meeting strategic goals**

- **In the grants context:** are projects meeting the AFRI requirements (incl. support of strategic goals)?
- **Performance measurement is a process –**
  - **Assessing progress towards achieving pre-determined goals including:**
    - Timeliness within which resources are transformed to outputs (results – goods, products and services produced)
    - Quality of output (how well delivered; extent of satisfaction)
    - Outcomes – results of a program/project/activity compared with its intended purpose
    - Effectiveness – specific contributions to program objectives
    - Impact – direct or indirect effects or consequences – outcomes that would not have occurred in the absence of program/project/activity

# Creative Opportunities



- Incorporate national STEM goals in AFRI initiatives with an education focus
- Recruitment – that inspires and attracts people to become engaged in *Food and Agriculture and Renewable Energy Science* at all levels
- Fully utilize the intersection of USDA/EPA/NOAA/NSF/NIH/Rural Development/State goals
- Translational professions/systems environment (transdisciplinary) development
- Curricula for high skill development to enter postsecondary education and the working world
- Target Education Co-Products from research and extension using planned synergist approaches



## Creative Opportunities

- Strong teams with complementary disciplines to address complex issues
- Multi-language *Food and Agriculture and Renewable Energy Science* Curricula Development (P-20)
- Science Teacher *Food and Agriculture and Renewable Energy Science* Capacity Opportunities
- Human capital for extension, research, teaching and management of *Food and Agriculture and Renewable Energy Science*



# Challenge

- Identify why human capital
- Innovative links in/outside of *Food and Agriculture and Renewable Energy Science* (Honors Colleges/Experiential or Service opportunities)
- Increase U.S. Competitiveness – link with increased skills
- Competence
  - Technical
  - Functional (Entrepreneurial/Public Policy/Private-Public Sector Skill Sets)
  - Global
  - Relationship
  - Accountability (Leadership)





## Resources

- Rising Above the Gathering Storm: *Energizing and Employing America for a Brighter Economic Future* – National Academy of Sciences (2007)
- World Agriculture: *Towards 2015/2030. An FAO Perspective* – Bruinsma, J. (ed.) Food and Agriculture Organization (2003)



[http://www.csrees.usda.gov/nea/education/education\\_res.html](http://www.csrees.usda.gov/nea/education/education_res.html)

**Search CSREES**

◦ Search Help

**Browse by Subject**

- ▶ Agricultural & Food Biosecurity
- ▶ Agricultural Systems
- ▶ Animals & Animal Products
- ▶ Biotechnology & Genomics
- ▶ Economics & Commerce
- ▶ Education**
- ▶ Families, Youth, & Communities
- ▶ Food, Nutrition, & Health
- ▶ International
- ▶ Natural Resources & Environment
- ▶ Pest Management
- ▶ Plants & Plant Products
- ▶ Technology & Engineering

You are here: [Home](#) / [Education](#) / [Resources](#)

## Education

### Resources

- [National Association of Agricultural Educators \(NAAE\)](#).
- [North American Colleges and Teachers of Agriculture \(NACTA\)](#).
- [National Association of State Universities and Land Grant Colleges \(NASULGC\)](#).
- [American Association of State Colleges of Agriculture and Renewable Resources \(AASCARR\)](#).
- [Agriculture in the Classroom's Natural Resource Directory](#); a searchable, peer-reviewed, electronic database of educational materials about agriculture.
- [CSREES Fellows Program, Higher Education Programs](#).
- [1890 Scholars Program, USDA](#).
- [Minorities in Agriculture, Natural Resources and Related Sciences \(MANRRS\) Association](#).
- [National Center for Educational Statistics](#).
- [Research, Education, and Economics Information System \(REEIS\)](#)
- [The American Indian Higher Education Consortium](#).
- [The Hispanic Association of Colleges and Universities \(HACU\)](#).
- [The Food and Agricultural Education Information System](#) gathers and compiles demographic information relative to degree programs.
- [USDA Living Science - Careers in the Food and Agricultural Sciences, Purdue University](#).
- [US Department of Education Publications](#).
- [Fellowships/Scholarships Entry/Exit Form: PDF | MSWord](#)

[Back to Education Home Page](#)

Last Updated: 08/30/2007

[CSREES](#) | [USDA.gov](#) | [Site Map](#) | [Policies and Links](#) | [Grants.gov](#) | [CRIS](#) | [REEIS](#) | [eXtension](#) | [CSREES RSS Newsfeed](#)  
[FOIA](#) | [Accessibility Statement](#) | [Privacy Policy](#) | [Non-Discrimination Statement](#) | [Information Quality](#) | [USA.gov](#) | [White House](#)



## Some More Resources

- *Research on Future Skill Demands – A Workshop Summary.* National Research Council (2008)
- *The Formation of Scholars – Rethinking Doctoral Education for the Twenty-First Century.* The Carnegie Foundation for the Advancement of Teaching (2007)